

# **KENTUCKY**

## **CHILD FATALITY REVIEW SYSTEM**

### **2002 Annual Child Fatality Review Report**



**CABINET FOR HEALTH AND FAMILY SERVICES  
DEPARTMENT FOR PUBLIC HEALTH**

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**MESSAGE FROM THE COMMISSIONER**  
**Cabinet for Health and Family Services**  
**Department for Public Health**

This report summarizes child fatality causes in Kentucky for children under the age of 18 and stresses related risk factors and prevention measures. The report information is based on Kentucky 2002 vital statistics and coroner child fatality report data.

During recent years many dedicated health care providers have steadfastly promoted and practiced initiatives to provide better access to prenatal care, reduce drug, alcohol and tobacco use, increase folic acid use, and have encouraged proper nutrition and physical exercise in women of child bearing age. We are very grateful for these efforts that are contributing to the improvement of the health of Kentucky mothers and their babies. Even with these efforts, however, congenital anomalies continue to remain the leading cause of infant deaths in Kentucky as well as the Nation and deaths due to prematurity and low birth weight are on the rise in the Commonwealth. In order to improve health outcomes, we must continue with these and other prevention measures as we strive to achieve a standard of excellence regarding infant health and survivability.

Injury related deaths continue to remain the most preventable types of child death and in order to reduce these types of deaths, education and awareness of child safety and injury prevention is imperative. While child deaths due to drowning and suicide declined in 2002, the majority of injury related deaths remained unchanged. Of concern is the fact that transportation related injuries continue to be the predominant cause of Kentucky injury related child deaths between one through 17 years of age. A significant number of child transportation related injuries and deaths could be avoided by increasing health education to improve public awareness of the importance of seat belt and booster seat usage for children ages four through eight, and improve safe driving habits among our young and inexperienced drivers.

All individuals and communities are encouraged to diligently practice injury prevention methods proven to make a significant difference in reducing child injury and fatality. The future of Kentucky's children depends on assuring a safe and quality community life for them and their families. It is hopeful that the information contained within this report will be utilized to strengthen communities and families and will help improve the lives of children across the state.

**Sincerely,**

**William D. Hacker, MD, FAAP, CPE**  
**Commissioner**  
**Department for Public Health**

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## **Executive Summary**

Deaths to children less than 18 years of age are steadily declining in the Commonwealth. In 1997, there were a total of 715 child deaths to Kentucky residents compared to 681 child deaths in 2002. This represents a 5% decline over the six year period. The majority of child deaths (69%) were due to Natural causes, with congenital anomalies being the most common cause of death in this category, whereas 31% were Injury related causes with transportation related fatalities being the most common.

Congenital anomalies were the most common cause of infant mortality followed by certain conditions originating in the perinatal period which includes short gestation/low birth weight. The most common cause of death to Kentucky's teen population (ages 13-17) was motor vehicle crashes followed by suicide.

Overall, the rate of death was higher among males compared to females (8.4/10,000 vs. 6.2/10,000) with males having a higher rate of Natural cause deaths than Injury related causes (5.6/10,000 vs. 2.7/10,000). Similarly, females had a higher rate of Natural cause deaths than Injury related causes (4.5/10,000 vs. 1.7/10,000).

In terms of age, infants (<1 year of age) had a higher rate of death than any other age group. The rate of death to infants due to Natural causes was almost 10 times that of the rate of death due to Injury related causes (66.1/10,000 vs. 6.8/10,000 respectively). In contrast, deaths to children aged 10-17 were primarily Injury related causes with this age group having a rate of death due to Injuries slightly more than twice that of Natural causes (2.8/10,000 vs. 1.3/10,000 respectively).

Racial disparities continue to remain a problem in the Commonwealth. Infant mortality rates for Blacks are more than twice that for Whites and this has changed little over the last five years. In 2002, the ratio of the Black to White infant mortality rate was 2.2, meaning that Black infants were more than twice as likely to die during the first year of life from any cause than White infants. This ratio has not improved over time and in fact it has increased since 1997.

The following table presents an overview of the comparison of Natural cause child fatalities to Injury cause child fatalities in the Commonwealth of Kentucky for year 2002.

## Comparison of Natural Cause Child Fatalities to Injury Cause Child Fatalities for Year 2002

	Grand Total		Natural Cause		Injury Cause	
	#	Rate*	#	Rate*	#	Rate*
<b>Total</b>	681	7.3	472	5.1	209	2.2
<b>Male</b>	400	8.4	269	5.6	131	2.7
<b>Female</b>	281	6.2	203	4.5	78	1.7
<b>Age Groups:</b>						
<b>&lt;1</b>	388	72.9	352	66.1	36	6.8
<b>1-4</b>	74	3.7	41	2.1	33	1.7
<b>5-9</b>	41	1.6	22	0.9	19	0.8
<b>10-17</b>	178	4.3	57	1.3	121	2.8

\*Rates are per 10,000 specified population ; Denominator data are based on the 2002 population estimates for Kentucky as compiled by the Kentucky State Data Center, Urban Studies Institute  
Note: Classification of death (Natural vs. Injury) is based on the ICD10 code as recorded on the death certificate



## **Child Fatality Review in Kentucky**

Kentucky passed legislation in 1996 to create a system for the purpose of reducing the number of child fatalities. The system was charged to establish priorities and develop child death prevention programs that require:

- Accurate determination of the cause and manner of death;
- Cooperation and communication among agencies responsible for the investigation of child fatalities; and
- Collection and analysis of data to:
  1. Identify trends, patterns, and risk factors; and to
  2. Evaluate the effectiveness of prevention and intervention strategies.

With passage of this legislation, the Kentucky Department for Health Services (now known as the Department for Public Health) was approved to establish a state child fatality review team. The establishment of a state team is not a requirement but as a voluntary body, if created, is requested by legislation to assume certain non-inclusive duties such as the:

- Development and distribution of model protocols for direction of local child fatality review teams that investigate child fatalities;
- Facilitation of local child fatality review team development that may include but is not limited to the provision of joint training opportunities and technical assistance;
- Review and approval of locally prepared and submitted child fatality review team protocols;
- Analysis of received data regarding child fatalities to identify trends, patterns, and risk factors;
- Evaluation of the effectiveness of adopted prevention and intervention strategies; and to
- Make recommendations regarding state programs, legislation, administrative regulations, policies, budgets, and treatment and service standards that may facilitate development of strategies for prevention and reduction of the number of child deaths.

Although it's a voluntary organization, the Kentucky Child Fatality Review State Team was organized in 1997 and has been functioning regularly since in an advisory capacity to the Department for Public Health. One of the earliest projects of the state team was to develop the Kentucky Child Fatality Review System Handbook that is referenced as the standards of practice for a local child fatality review team. The fostering of local child fatality review team development and continuation is one of the most important infrastructure building responsibilities of the Department for Public Health in partnership with the state team to assure a strong child injury and fatality review and prevention system throughout Kentucky. The local team composition, similar to that of the state team, includes multidisciplinary representation from the medical, legal, social and child protection services, law enforcement, mental health counseling, consumer and other key community organizations focusing on child

safety issues. For example, local health department representative participation on a local child fatality review team offers a unique opportunity for the health department participant to assess the high-risk health and life threats regarding the community's children. In return, the coroner and other team members have the opportunity to partner with their local health department in sharing, discussing and prioritizing child health and life risk factors for team participation in various community prevention projects.

From the results of a 2002 questionnaire survey of coroners, 63 coroners of the 120 Kentucky counties reported having a local child fatality review team, concluding that approximately 50% of Kentucky's counties were active in adopting a component of the 1996 legislative mission to reduce the number of child fatalities. After reviewing responses related to local team composition, it was learned that of the core team members recommended in the Kentucky Child Fatality Review (CFR) System Handbook, the one most often absent in local team membership listings was a representative from the local health department.

The information analyzed from the 2002 survey identified several areas that need improvement in the Kentucky child injury and death prevention system. A major area is related to the responsibility of facilitating the development and continuation of local CFR teams, mentioned before as an infrastructure component vital to the success of the Kentucky child injury and death prevention system. One of the goals selected by the Kentucky Child Fatality Review and Injury Prevention Program, in partnership with the Kentucky CFR State Team for the 2003-2004 fiscal year is a special project to assist the facilitation of local child fatality review team development and continuation.

Local CFR team development and continuation is not a legislative requirement, but is voluntary, and there is no legislative funding appropriation to support local CFR teams. For the fiscal year project, a minimum amount of funding support from state general funds was earmarked to each local health department for mandatory availability to assist each local county coroner in starting a new local CFR team in a county where no team existed, or to subsidize the functions of an already existing local CFR team. Also, the local health department director was asked to appoint a health department representative to assist the local coroner in developing a new team, serving as the health department representative to the team membership, or to offer to assist and serve on an already existing team. Close communication was established between the state level Child Fatality Review and Injury Prevention Program administrator and local health department staff for consultation and, when requested, for the state level program administrator or a CFR state team member to make an on-site visit to provide technical assistance or orientation training to a local team. Oftentimes, the local health department representative conducted the team orientation training.

Results of the 2003-2004 fiscal year project appear in the listings and are featured in the map on the following pages. Although the project yielded promising results in the development of additional new teams, it was concluded that more ongoing support is needed to keep the local teams motivated and functioning. The state program administrator learned in communications with various local team members some of the misinterpretations or barriers to effective team functioning. The project offered a forum for coroners to experience in a



partnership setting the skills of the health department representative and the responsibilities and services offered by the health department agency not only for its direct clientele, but also to the public at large. Likewise, the health department representative had an opportunity to relate to the coroner responsibilities and to conduct assessments of local community child health and life threats through a team effort. For both, participation in a multidisciplinary fashion helped to expand the knowledge of team members regarding child death causes and risk factors.

A very positive outcome from the project was an increase in outreach from the state to the local level, and conversely the understanding at the local level that state team members and state level program staff are available, listening and making efforts to improve the system for the common goal of reducing all Kentucky child deaths.

During the time of both the 2002 survey and the 2003-2004 fiscal year project the realization emerged that there is still lack of recognition in significant portions of our state that injuries are a public health priority because injuries are the number one killer of children between one through 17 years of age. Injury threats do not have the impact that communicable diseases have in our society. Yet, injury related deaths are the most preventable of child death causes.



## Kentucky Counties With A Local Child Fatality Review Team

Adair*#	Gallatin*#	Leslie#	Robertson*#
Allen*	Garrard#	Letcher	Rowan
Anderson*	Grayson#	Lewis	Scott*#
Bath	Green	Lincoln	Spencer#
Boone	Hardin*	Madison	Trigg#
Boyd*	Harrison	Martin#	Union
Boyle*	Henderson	Mason*	Whitley
Bracken	Hopkins	Menifee*	
Breathitt*	Jackson*	Mercer*#	<b>Total 58 Teams</b> <b>41 Existing</b> <b>17 New</b>
Breckenridge*	Jefferson*	Monroe*#	
Calloway#	Jessamine	Montgomery+	
Campbell	Johnson*	Morgan*	<b>23 Teams met frequency of</b> <b>meeting standards*: 16 Existing</b> <b>7 New</b>
Carroll	Kenton	Nelson	
Clay+#	Knott	Ohio#	
Edmonson	Larue*#	Owen*	
Fayette*	Lawrence#	Pendleton*	
Franklin#	Lee#	Perry	

Based on collected data of County CFR Team activity between April 1, 2003 through July 30, 2004

\*Identifies functioning teams that meet the Kentucky Standard of Practice. The standard of practice based on the Kentucky CFR System Handbook indicates a team meets together at least twice a year regardless if there is a child death case scheduled for review.

+Indicates community organizations have met at least once to organize without coroner office representation being present

#Indicates a new team

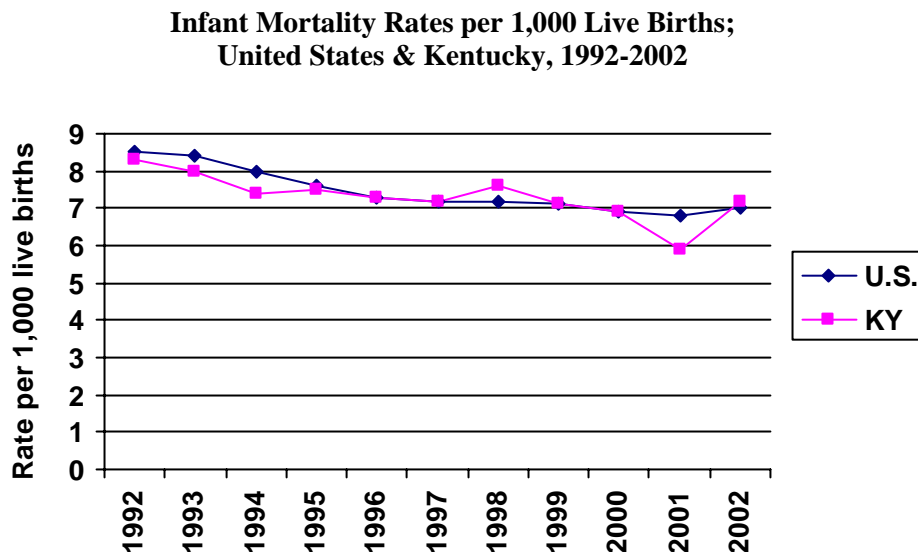
**Information presented is current as of Nov. 1st, 2004 and is subject to change**

## Infant Mortality

Infant mortality rates are the most commonly used index for measuring the risk of dying during the first year of life. Infant mortality is expressed as a rate of death per 1,000 live births. Often times, infant mortality rates are used to assess the health status of a nation or a specific geographical area. Multiple factors affect infant mortality making it difficult to target interventions however, significant advances have been made in the field of science which has helped to reduce infant deaths. Even though improvements are being made, the U.S. still has one of the higher infant mortality rates of all industrialized nations.

Infant mortality has been steadily decreasing in Kentucky and the U.S. over time. From 1992-2001 the infant mortality rate declined 21% for the U.S. and 28% for Kentucky (Figure 1.) however, the 2002 infant mortality rate increased for both the U.S. and Kentucky for the first time in over fifty years. The 2002 infant mortality rate for Kentucky was 7.2/1,000 live births compared to 7.0/1,000 live births for the U.S.

Figure 1.



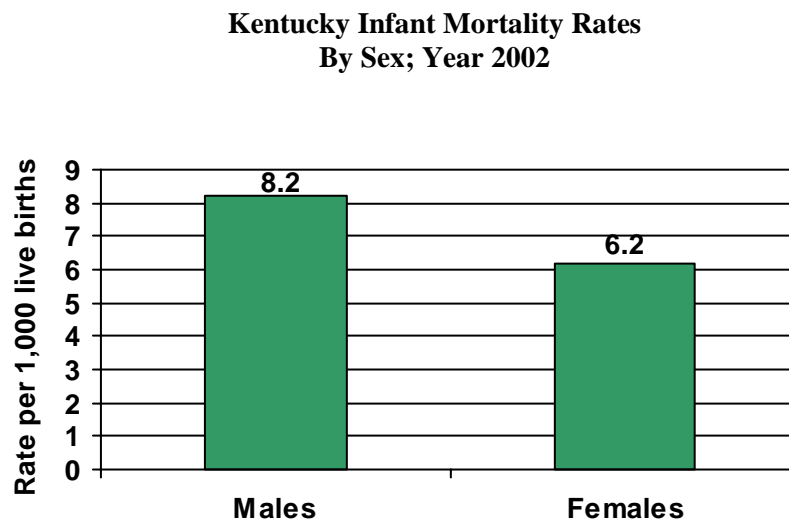
Several factors are being investigated as to the cause of the increase in the infant mortality rate including changes in the leading causes of death to infants. The top three leading causes of infant death for the Nation in 2002 was: Congenital Anomalies, Short Gestation/Low Birth Weight, and Maternal Complications of Pregnancy. For Kentucky, the top three leading causes of infant death were: Congenital Anomalies, Short Gestation/Low Birth Weight, and Sudden Infant Death Syndrome. Congenital Anomalies have long been the leading cause of infant death for Kentucky as well as the nation, however, Short Gestation/Low Birth Weight and Maternal Complications of Pregnancy have only recently been in the top five causes of infant mortality indicating that different circumstances and new problems must now be addressed when combating infant mortality.

Along with changes in the leading causes of death other factors contributing to the rise in the infant mortality rate include: an increase of deaths during the neonatal period (0-27 days), an increase in the percent of births born preterm (<37 completed weeks of gestation) and low birth weight (<2500 grams), an increase in the use of assisted reproductive therapies leading to an increase in multiple births, of which more than half are born preterm and/or low birth weight, and changes in the management of labor and delivery particularly in the use of induction of labor and of cesarean delivery among births delivered preterm<sup>1</sup>. These issues will need to be carefully monitored over time in order to determine if there is a sustained increase in infant deaths and if so appropriate interventions should be implemented to help reduce the infant mortality rate.

Other factors that can influence infant mortality include but are not limited to: gender, race, socio-economic status, education, maternal/paternal risk behaviors, and knowledge of safe infant care practices.

Gender appears to have a role in infant survival during the first year of life. The rate of infant deaths was higher among males as opposed to females with males having a rate of death 1.3 times that of females (Figure 2.). Males in general are typically at greater risk of dying during the first year of life as opposed to females and even though infant deaths increased as a whole, male deaths still remain higher than female deaths.

**Figure 2.**



Racial disparities in infant mortality has been a long-standing problem for both the U.S. and Kentucky.

Infant mortality rates differ greatly among whites and non-white races. Black infants have higher rates of mortality compared to white infants. In fact, over the last ten years in Kentucky, the infant mortality rate has not decreased for blacks in the same way it has for whites. In 2002, the ratio of the black to white infant mortality rate was 2.2, meaning that black infants were more than twice as likely to die during the first year of life compared to white infants (Table 1.). This discrepancy has not improved over the last five years and actually increased from 1.5 in 1997 to 2.2 in 2002.

**Table 1.**

**Kentucky Infant Mortality Rates\*  
By Race; 1993-2002**

<b>Year</b>	<b>White</b>	<b>Black</b>
1993	7.4	14.1
1994	6.8	13.5
1995	7.2	10.7
1996	6.8	13.0
1997	7.0	10.8
1998	6.9	15.4
1999	6.7	12.3
2000	6.3	12.9
2001	5.4	10.5
2002	6.4	14.0

\*Rates are per 1,000 live births

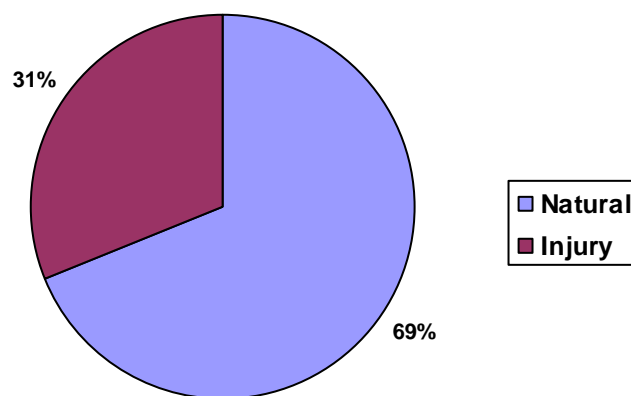
## Natural Cause Child Fatalities

Natural cause deaths can be influenced by a wide variety of factors. In terms of natural cause deaths in children, contributing factors may be present before conception and throughout the pregnancy. Such factors may include but are not limited to socio-economic factors, cultural factors, geographical location, education level, and health behaviors of the mother. Poor birth outcomes are greatest among teenage mothers, those of non-white race, and individuals living in poverty. Steps taken to improve pregnancy outcomes include early and appropriate prenatal care, health education, proper nutrition, social support, risk identification with intervention, and obstetrical care. Prior to conception and throughout the prenatal period, it is critical that efforts are made to make all pregnancies as healthy as possible since this will directly impact the number of infant and child deaths in the state.

Child deaths due to natural causes account for the larger proportion of fatalities for the year 2002 (Figure 1). Deaths classified under the category of natural cause are generally linked to a specific disease or condition such as cancer or congenital anomalies. Natural cause deaths to children have slowly declined in the past as depicted in Figure 2., however, there was a slight increase in the number of natural cause deaths to children from 2001-2002. Several factors could have contributed to the increase such as an increase in infant deaths and deaths due to congenital anomalies and short gestation/low birth weight. Better understanding to the prevention of specific diseases and adverse birth outcomes will help to aid in the reduction of occurrences of natural cause deaths.

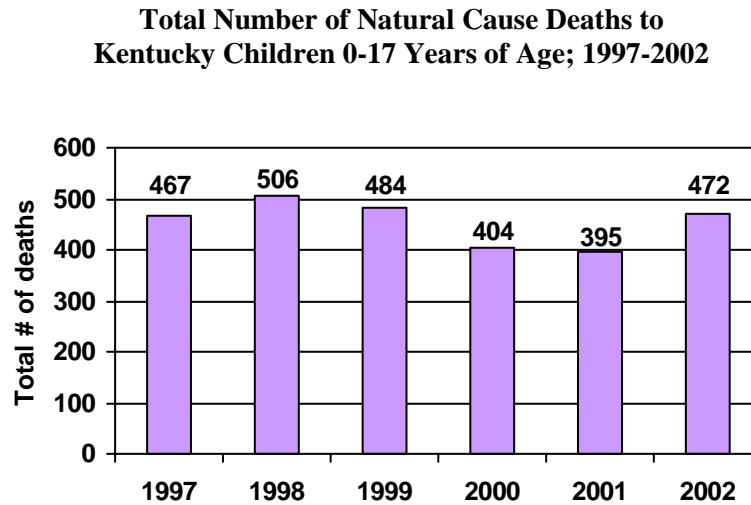
**Figure 1.**

**Percent of Total Kentucky Child Deaths by Type; Year 2002**





**Figure 2.**



Over half (75%) of the natural cause deaths occurred to children less than one year of age with only 25% occurring to those aged 1-17 (Figure 3.). Further age break-outs reveal that infants (<1 year of age) have the highest age-specific death rate due to natural causes with a rate of 66.1/10,000 population (Figure 4.).

**Figure 3.**

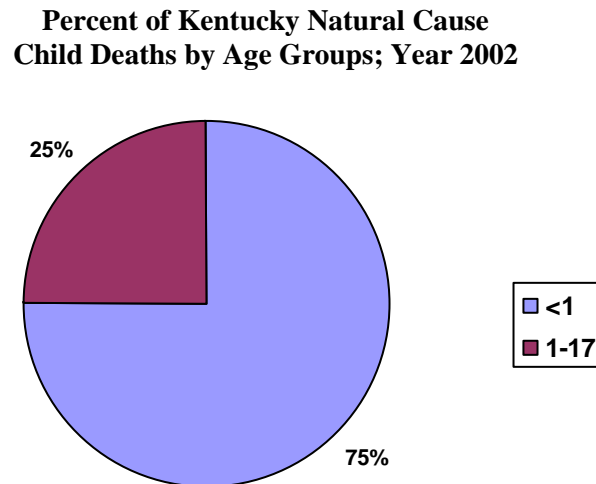
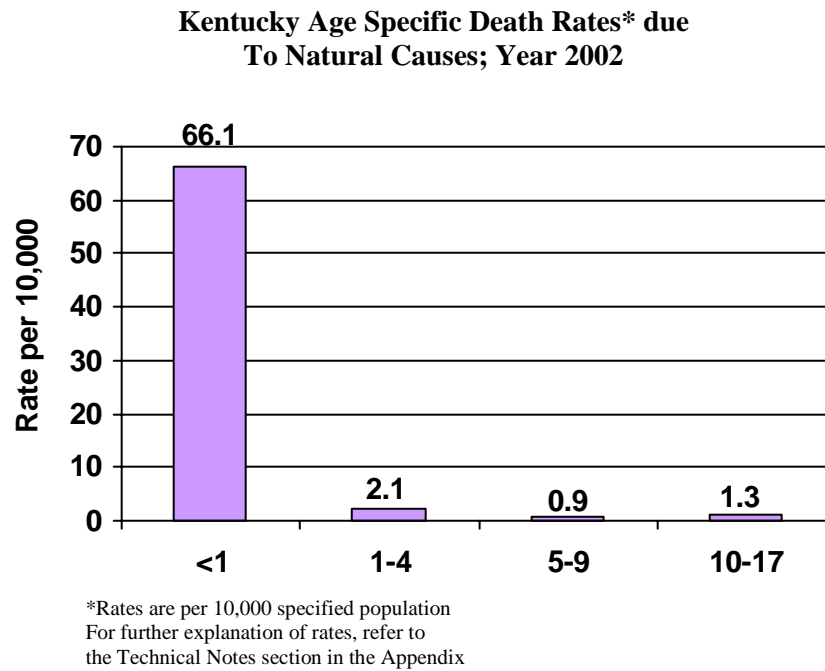
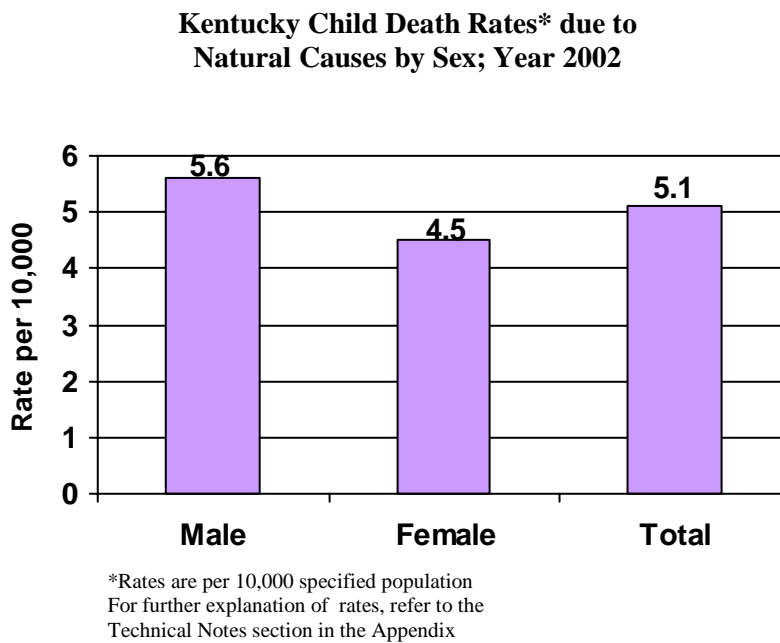


Figure 4.



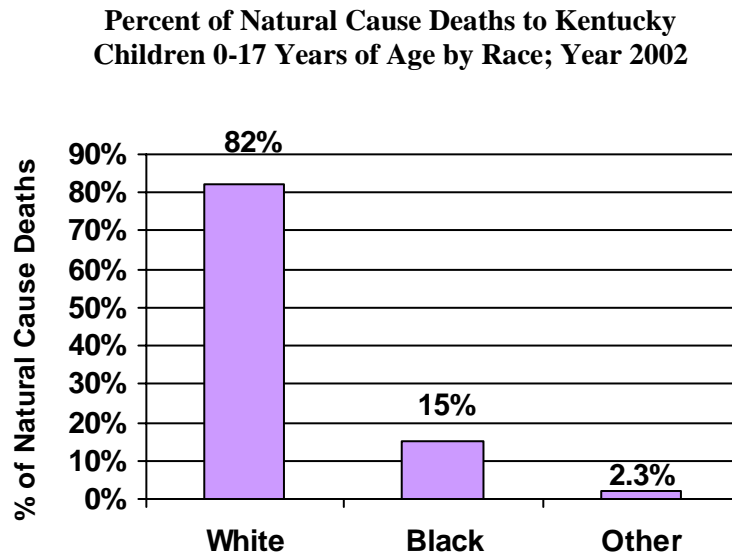
Natural cause deaths affect males at a higher rate than females (Figure 5.) with males having a rate 1.2 times higher than that of females. The overall rate of deaths due to natural causes for year 2002 was 5.1/10,000 population aged 0-17.

Figure 5.



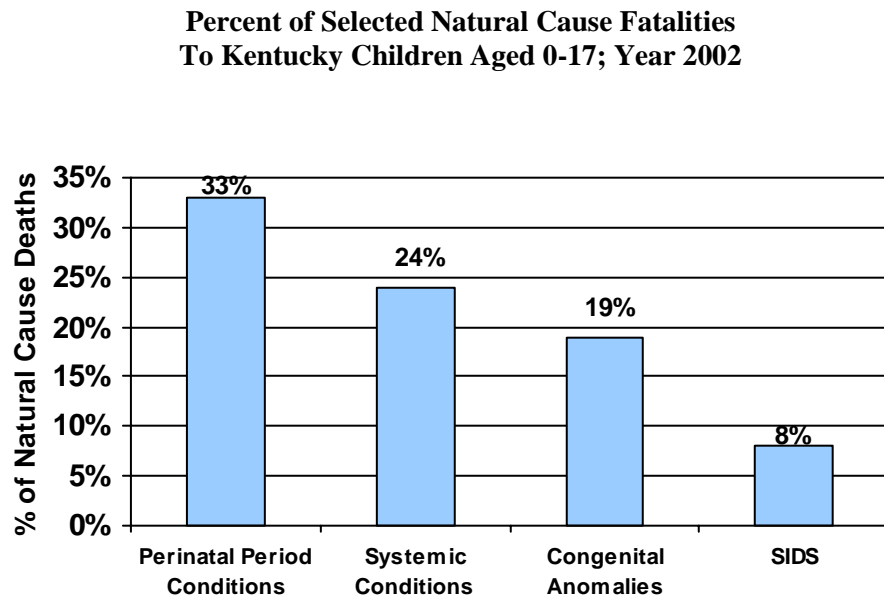
The percentage of natural cause deaths was highest among those of white race compared to those of black or other races (Figure 6.). Over three-fourths (82%) of the deaths in this category were to those children of white race.

**Figure 6.**



The perinatal period (defined as 20 weeks gestation through 27 days of life) is a vulnerable time for both the developing fetus and the newborn. In Kentucky, the greatest number of natural cause deaths were due to adverse conditions originating in the perinatal period (Figure 7.). Some examples of this category include: complications of pregnancy, labor and delivery, disorders related to length of gestation and fetal growth, birth trauma, and infections specific to the perinatal period. Systemic conditions and diseases were the second most common natural cause death occurring to children. Examples of this category include infectious diseases, endocrine and metabolic diseases, nervous system diseases, digestive system diseases, musculoskeletal system diseases, and genitourinary system diseases.

Figure 7.



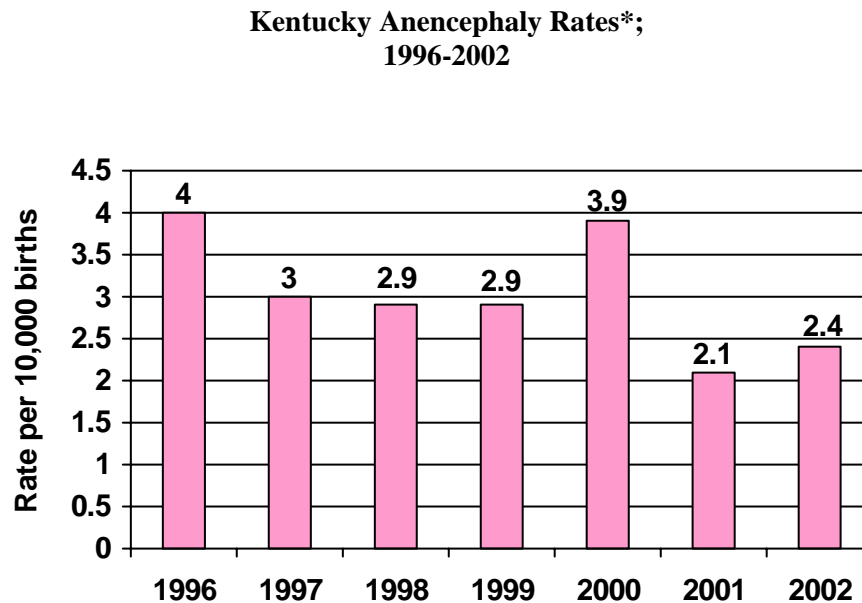
### **Congenital Anomalies**

Congenital anomalies, also known as birth defects, accounted for 19% of the natural cause deaths in 2002. Birth defects continue to remain the leading cause of morbidity and mortality in the U.S. accounting for more than one in five infant deaths. Even though advances in other causes of infant mortality have led to their decline, there has not been a significant decline in those infant deaths due to birth defects over the past several years.

One specific type of congenital anomaly, neural tube defects (NTDs), affect approximately 4,000 infants each year in the U.S. NTDs are a group of congenital malformations involving defects in the skull and spinal column that are caused primarily by the failure of the neural tube to close during embryonic development. This group of defects consist of anencephaly, spina bifida, and encephalocele.

Anencephaly, a lethal condition characterized by the absence of major portions of the brain and malformation of the brainstem, accounts for several of the infant deaths due to congenital anomalies. In Kentucky, rates of anencephaly declined 40% from 1996-2002 with the highest rate (4.0/10,000 births) occurring in 1996 (Figure 8.).

Figure 8.



\*Rates are per 10,000 live and still births  
Cases are based on the ICD9 code 740.0-740.1  
Source: Kentucky Birth Surveillance Registry, 1996-2002

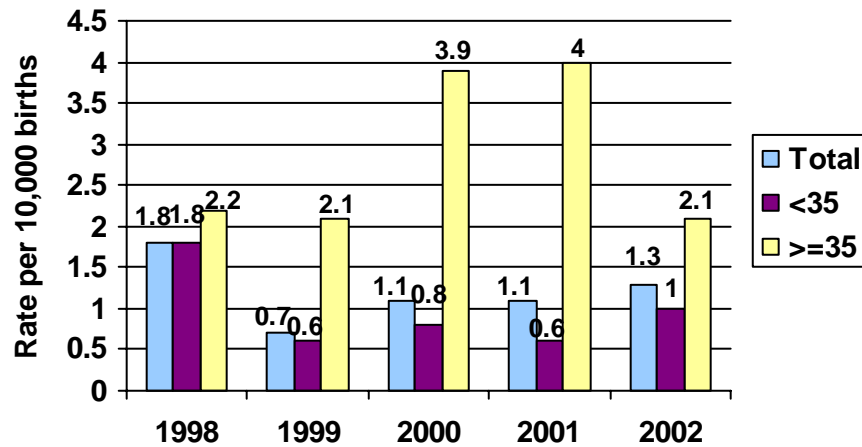
Certain other types of birth defects are considered to be lethal conditions thus contributing greatly to the overall infant mortality rate. Two such types of conditions are Trisomy 13 and Trisomy 18. These two types of syndromes are the second and third most common chromosomal abnormalities with Down Syndrome being the most common.

Trisomy 13 is a chromosome disorder in which a child has an extra copy of chromosome 13. There is no known apparent cause for the disorder, however advanced maternal age seems to play a role. Nationally, the disorder affects approximately 1/5,000 live births and is a common chromosomal cause of fetal death, miscarriage, and stillbirth<sup>2</sup>. Infants born with Trisomy 13 tend to be small for gestational age and have anatomical defects of the brain. Approximately 80% of cases have additional congenital anomalies including heart defects, cleft lip and or cleft palate, omphalocele, and limb anomalies. Infants that survive past one month of age usually have severe developmental delays as well as slow physical growth<sup>3</sup>.

Rates of Trisomy 13 decreased 26% in Kentucky from 1998-2002. There was also a 44% decrease in the rate of Trisomy 13 to women less than 35 years of age at the time of birth for the same time period. Although overall rates and rates to women less than 35 decreased, the rate of Trisomy 13 to women aged greater than or equal to 35 at the time of birth increased from 2.2/10,000 births in 1998 to 4.0/10,000 births in 2001 before declining to 2.1/10,000 births in 2002 (Figure 9).

**Figure 9.**

**Rates\* of Trisomy 13 by Maternal Age\*\* Among  
Kentucky Residents, 1998-2002; Kentucky  
Birth Surveillance Registry Data**



\*Rates are per 10,000 live & still births per specified age group

\*\*Maternal age reflects the Mother's age at time of birth, either <35 or >=35

Cases are based on the ICD9 code 758.1

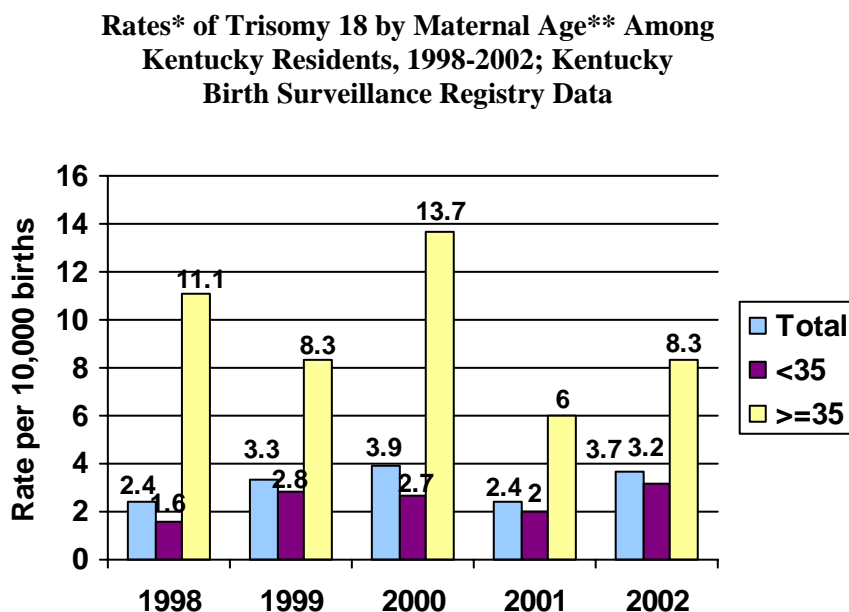
Source: Kentucky Birth Surveillance Registry, 1998-2002

Trisomy 18, the second most common chromosomal disorder after Down syndrome, is a genetic disorder affecting approximately 1/8,000 live births nationally. This syndrome is typically a lethal condition where 95% of affected fetuses abort spontaneously. Babies born with Trisomy 18 have a very poor prognosis with 96% dying within the first year of life, 30% within the first month, and 50% within the second month<sup>4</sup>. There is no known cause for this disorder, however, advanced maternal age appears to be a risk factor. There is often a history of minimal fetal activity, excess fluid in the fetal sac, a small placenta, and a single umbilical artery.

Infants born with Trisomy 18 tend to be small for gestational age, have difficulty eating, and fail to thrive. Often times other congenital anomalies are present such as heart defects, anomalies of the lung, kidney, and diaphragm, cleft lip and or cleft palate, eye abnormalities, hearing loss, and limb deformities. Severe developmental delays and profound mental retardation are exhibited by those infants surviving to one year of age<sup>5</sup>.

Rates of Trisomy 18 in Kentucky have increased slightly since 1998 with a rate of 2.4/10,000 births in 1998 compared to 3.7/10,000 births in 2002. There was a slight increase in rates to women less than 35 years of age at time of birth rising from 1.6 to 3.7/10,000 births from 1998-2002. Rates to women greater than or equal to 35 years of age at time of birth decreased 25% during the five year time period (Figure 10.).

**Figure 10.**



\*Rates are per 10,000 live & still births per specified age group

\*\*Maternal age reflects the Mother's age at time of birth, either <35 or >=35

Cases are based on the ICD9 code 758.2

Source: Kentucky Birth Surveillance Registry, 1998-2002



Multiple causes exist for birth defects however, current research is gaining insight into more specific causes enabling prevention efforts to become more targeted. One such example is the discovery that up to 70% of NTDs can be prevented through the daily consumption of 400 mcg of folic acid by women of childbearing age. Proper risk education along with preconceptional health promotion are critical elements of targeted prevention in helping to reduce birth defects. Although all birth defects are not preventable, there are steps that a woman can take to increase her chance of having a healthy baby. Many birth defects happen very early in pregnancy, sometimes before a woman even knows that she is pregnant.

Every woman should:

- Take a multivitamin that has 400 mcg of folic acid in it every day
- Have regular medical check-ups
- Talk to her health care provider about any medical problems such as diabetes or phenylketonuria
- Talk to her health care provider about any medicine use including over-the-counter and prescription medications
- Talk to her health care provider about substances at work or home that should be avoided as they might be harmful to a developing baby
- Keep vaccinations up-to-date
- Eat a healthy, balanced diet
- Avoid eating raw or undercooked meat
- Avoid alcohol, tobacco, and street drugs

Surveillance of birth defects in Kentucky is necessary in order to identify areas of concern within the state. One way in which this is accomplished is through a statewide birth defects registry. The Kentucky Birth Surveillance Registry (KBSR) is a state mandated surveillance system designed to provide information on incidence, prevalence, trends and possible causes of stillbirths, birth defects, and disabling conditions. The KBSR collects information from vital records, acute care, and birthing hospitals, laboratory reporting, and voluntary outpatient reporting on all children from birth to five years of age who are diagnosed with any structural, functional, or biochemical abnormality determined genetically or induced during gestation. The KBSR operates under the authority of KRS 211.651-670 with statewide data collection for surveillance beginning in April of 1996.

## **Sudden Infant Death Syndrome**

Sudden Infant Death Syndrome (SIDS) remains in the top ten leading causes of infant deaths in the U.S. and was the third leading cause of infant deaths in 2002. The American Academy of Pediatrics defines SIDS as “the sudden death of an infant under the age of one year which remains unexplained after thorough case investigation, including the performance of a complete autopsy, examination of the death scene, and review of the clinical history.” The typical presentation in SIDS is the sudden unexpected death of a seemingly healthy infant with more deaths occurring in the winter months. Ninety-five percent of SIDS cases occur by six months of age with peak onset between two and four months.

The etiology of SIDS is still unknown and several risk factors play a key role in the onset of the syndrome. Some of the risk factors include:

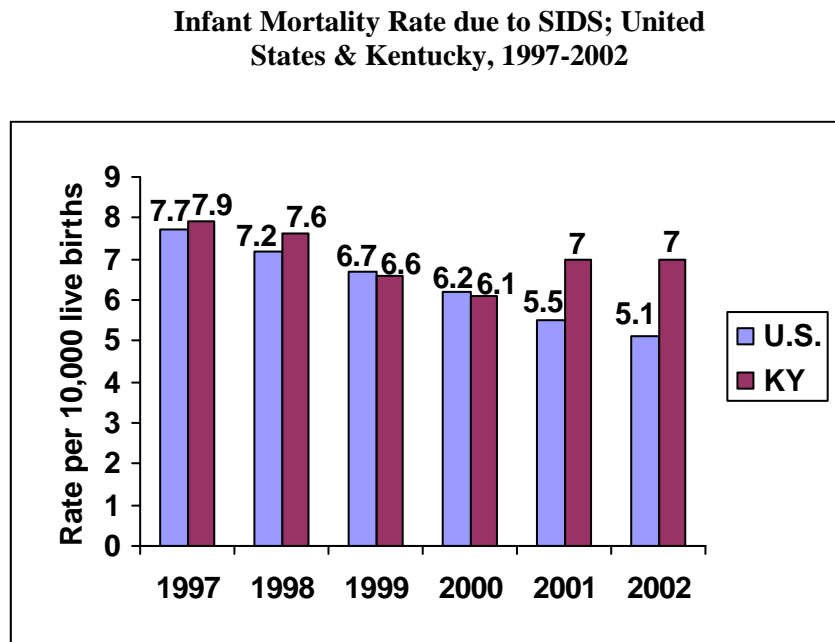
- Maternal smoking during pregnancy
- Infants exposed to passive smoke after birth
- Maternal age younger than 20 years at first pregnancy
- Illicit drug use during pregnancy
- Low socioeconomic status
- Premature infant
- Low birth weight infant
- Inadequate or no prenatal care
- Infants placed to sleep in prone sleeping position
- Infants placed to sleep on soft bedding surfaces
- Infants with a recent history of illness

It is also important to note that SIDS affects a higher percentage of males than females. Also, a large number of infants who die from SIDS have either a respiratory or gastrointestinal infection prior to their death. Research to determine the cause of SIDS is still ongoing. Evidence suggests that some SIDS babies are born with brain abnormalities that make them vulnerable to sudden death during infancy. These abnormalities are found in the part of the brainstem involved in the control of breathing during sleep.

Education related to prevention interventions must be delivered continuously in order to assure that parents and caregivers are knowledgeable of the risk factors for SIDS. While there is currently no way to determine which infants will die from SIDS, it is imperative that all parents and caregivers of infants be aware of the risk factors for SIDS and take the appropriate measures to lower these risks.

SIDS deaths accounted for 8% of the natural cause child deaths for Kentucky during 2002. Although the infant mortality rate due to SIDS has slightly decreased over the last five years, Kentucky still remains well above the National rate (Figure 11.).

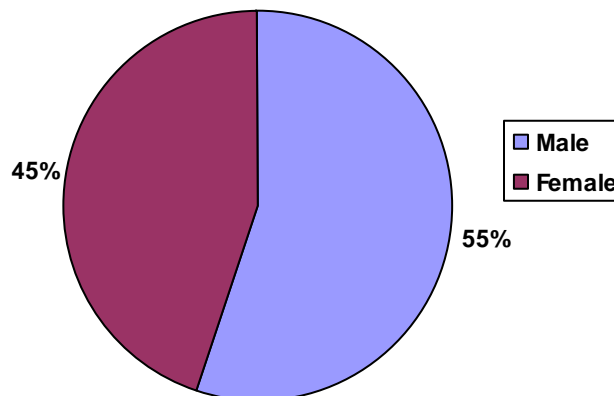
**Figure 11.**



There were a total of 38 Kentucky infant deaths due to SIDS in 2002 with 79% of those occurring in infants between the ages of one and four months. Over half (55%) of SIDS deaths were male compared to female (Figure 12.) and 79% were of white race (Figure 13.).

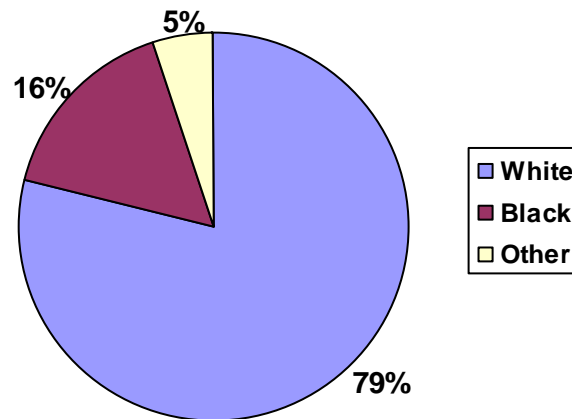
**Figure 12.**

**Percent of Kentucky Infant Deaths due to SIDS by Sex; Year 2002**



**Figure 13.**

**Percent of Kentucky Infant Deaths due to  
SIDS by Race; Year 2002**



**Prematurity and Low Birth Weight**

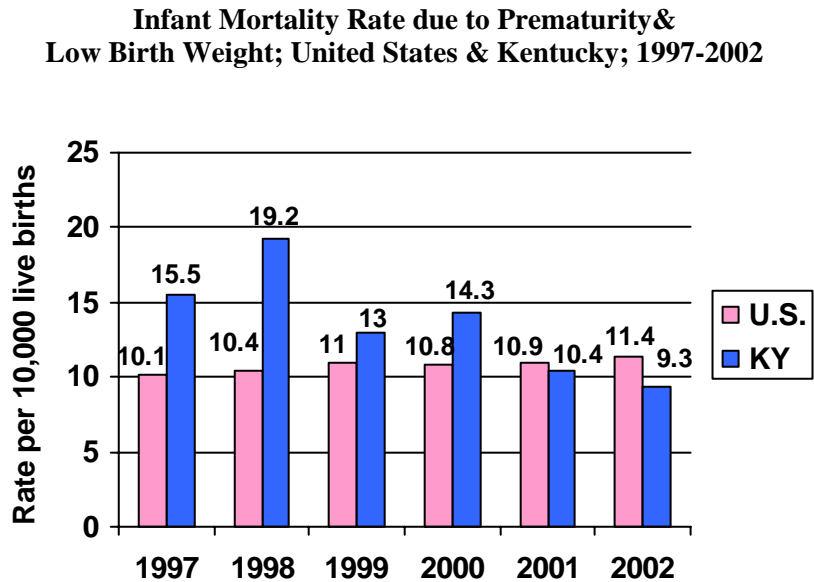
Prematurity and low birth weight fatalities contribute greatly to the natural cause deaths both nationwide and in Kentucky. In fact, in 2002, prematurity and low birth weight was the second leading cause of infant mortality in the U.S. and has remained among the top ten leading causes of infant death for the past five years.

Preterm birth is defined as any birth occurring prior to 38 weeks of completed gestation, and low birth weight is defined as any infant weighing less than 2500 grams (5lb. 8oz.) at birth. Certain known risk factors place a woman at higher risk of preterm delivery than others. These factors include:

- Previous preterm or low birth weight birth
- Multiple births
- Short interpregnancy interval
- Maternal smoking during pregnancy
- Maternal drug use during pregnancy
- Certain infections during pregnancy including sexually transmitted diseases
- Little or no prenatal care
- Certain birth defects

Even though the preterm, low birth weight infant mortality rate has declined 40% in Kentucky over the past six years, the rate continued to remain above the national rate until 2001 where it dropped slightly below (Figure 14.).

**Figure 14.**



Continued research into the causes and risk factors associated with prematurity and low birth weight is critical in order to develop effective prevention of preterm and low birth weight deliveries. Women must be educated to recognize the signs of preterm labor and know the appropriate steps to follow.

## Injury Related Fatalities

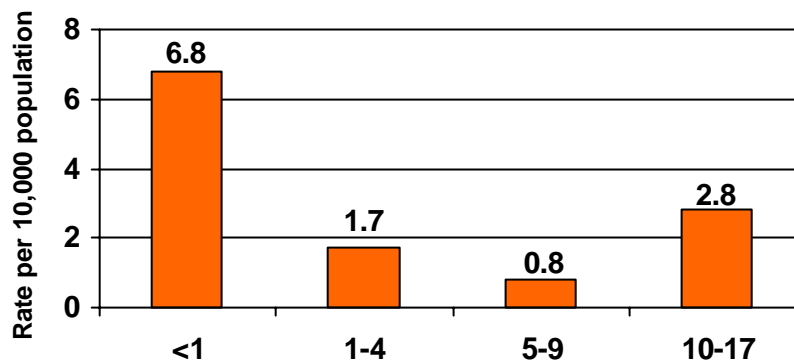
Injuries to children continue to remain a major cause of morbidity and mortality in the U.S. The majority of childhood injuries are preventable yet they continue to remain in the top ten leading causes of death nationwide. Injuries are also extremely costly to society. The financial cost of injuries is estimated at more than \$224 billion each year. These costs include direct medical care, rehabilitation, lost wages and lost productivity. The federal government pays approximately \$12.6 billion each year in injury related medical costs and about \$18.4 billion in death and disability benefits. It is estimated that insurance companies and other private sources pay approximately \$161 billion annually<sup>6</sup>.

Prevention of injuries is necessary in order to reduce the number of injury related deaths. Previous research has identified three key aspects of injury prevention including education, environment/product changes, and legislation/regulation. Of these three areas, legislation/regulation is the most influential in reducing childhood injuries<sup>7</sup>. Injury rates exhibit a decline when education, environmental and product changes are combined with primary enforcement. Kentucky has achieved progress in protecting very young children with primary enforcement regulations regarding appropriate use of safety seats and restraints. Proper restraint requirements for older children are less strong.

Injury related fatalities continue to remain a leading cause of death for children of all ages in Kentucky accounting for 31% of child deaths in 2002. Children less than one year of age had the highest death rate due to injuries (6.8/10,000) and children aged 5-9 had the lowest rate (0.8/10,000) [Figure 15.]. The overall rate of death for children birth to 17 due to injuries was 2.2/10,000 population with males having a rate of death over one and a half times that of females (Figure 16.).

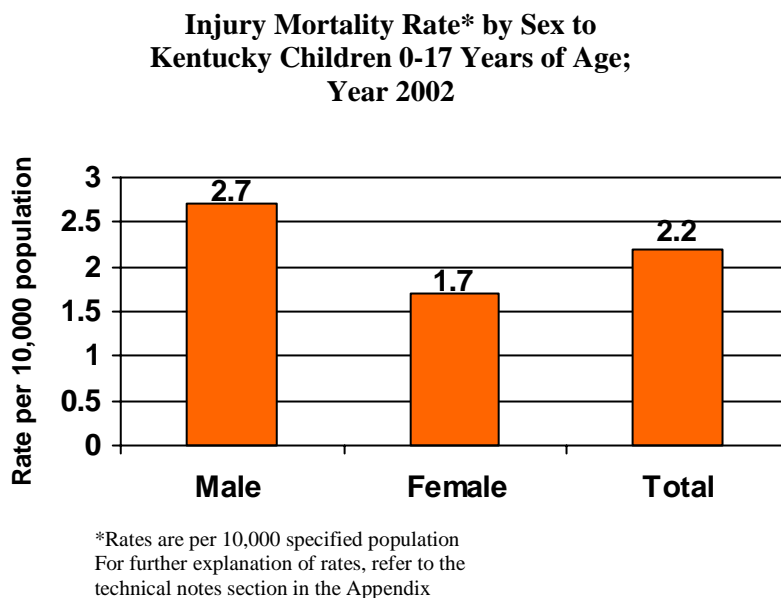
Figure 15.

**Injury Mortality Rate\* by Age Groups for  
Kentucky Children; Year 2002**



\*Rates are per 10,000 specified population  
For further explanation of rates, refer to the  
technical notes section in the Appendix

**Figure 16.**



### **Unintentional Injuries**

There are two main types of injury related fatalities; unintentional and intentional. Of the total injury child fatalities in Kentucky, 85% were unintentional in nature with transportation related incidents contributing the most deaths. The leading causes of unintentional injury child deaths for 2002 included transportation, suffocation/strangulation, drowning, and smoke/fire. The remaining unintentional causes included falls, electrical incidents, mechanical forces, medical incidents, and poisoning.

Since the majority of injuries are preventable, it is important to place a strong emphasis on education and awareness of risk factors associated with injuries in order to help increase prevention and reduce incidence.

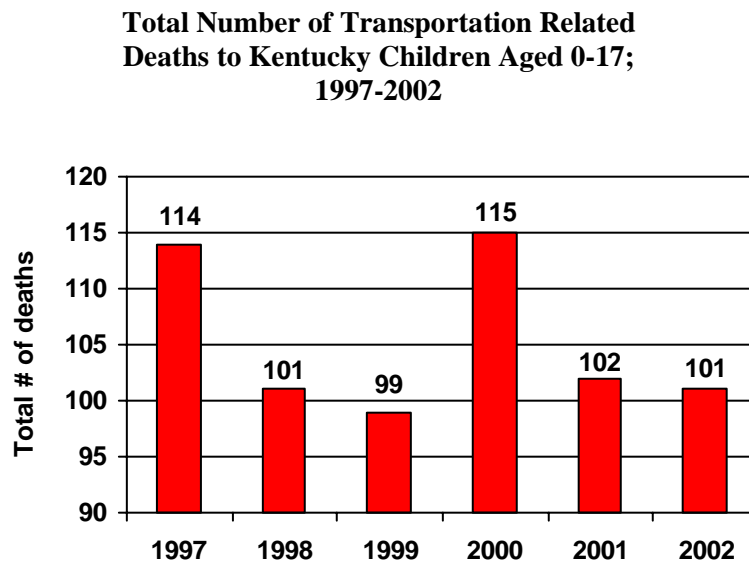


## Transportation Fatalities

Incidents involving transportation vehicles continue to remain the leading cause of child injury deaths in the Commonwealth. Transportation vehicles may be either motorized or non-motorized. A greater number of child deaths are caused by motorized vehicles including automobiles, trucks, motorcycles, farm equipment, and all terrain vehicles (ATV's). A smaller number of transportation related deaths involve non-motorized vehicles such as skate boards, roller blades, skates, and pedal bicycles.

Transportation related fatalities have not changed dramatically over the past six years in Kentucky. The total number of deaths due to transportation accidents has only declined 11% since 1997 (Figure 17.).

**Figure 17.**

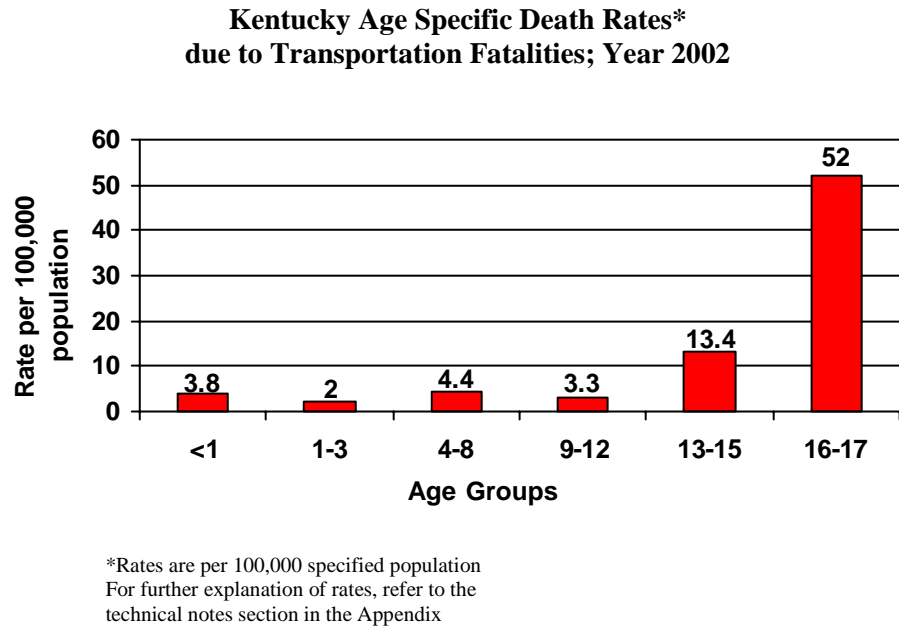


When assessing transportation related deaths, age plays a major role with the majority of the deaths occurring in the teen population and fewer deaths among those less than 12 years of age. Those aged 16-17 had the highest age specific death rate (52.0/100,000) than any other age group with those aged 13-15 having the second highest rate (Figure 18.). These data clearly indicate that newly licensed teen drivers are at high risk for transportation injuries and death.

Public health education regarding proper use of safety belts for teens and adults is needed in order to help reduce fatal injuries involving transport vehicles.

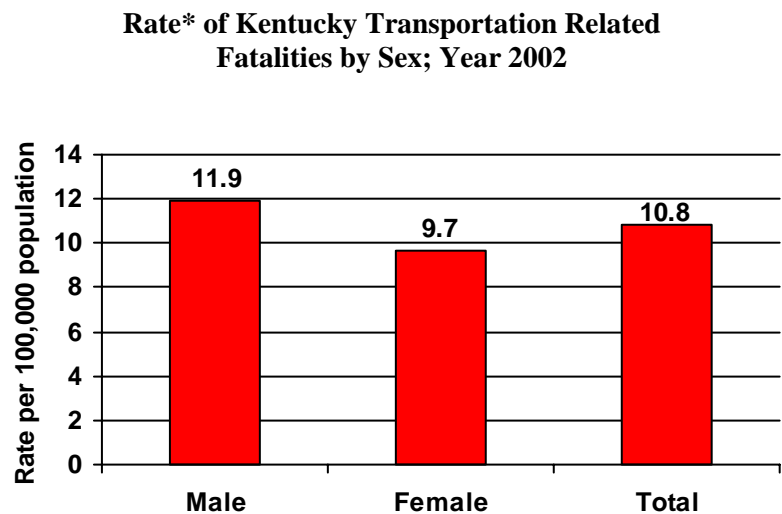
The graduated drivers license program has been shown to reduce fatal crashes among 16 year olds by 31% in a 1997-2000 study conducted by researchers at the Kentucky Transportation Center and the Kentucky Injury Prevention and Research Center. Graduated drivers licensing includes restrictions that protect young drivers from hazardous situations while learning to drive including an extended supervised learning period to improve driving skills and decision making.

Figure 18.



The rate of transportation deaths was higher among males than females (Figure 19.) indicating the possibility that males may engage in more risk taking behaviors than females. Of the total transportation related fatalities, 94% were to those of white race while 5.0% were to those of black race (Figure 20.).

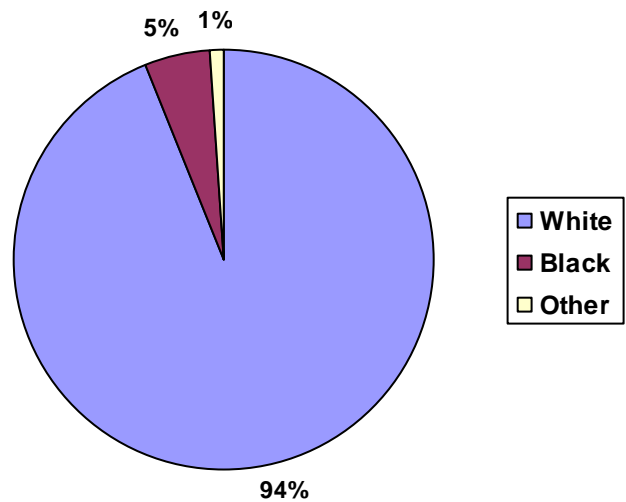
Figure 19.



\*Rates are per 100,000 specified population  
For further explanation of rates, refer to the  
technical notes section in the Appendix

Figure 20.

**Percentage of Kentucky Transportation Related  
Fatalities by Race; Year 2002**

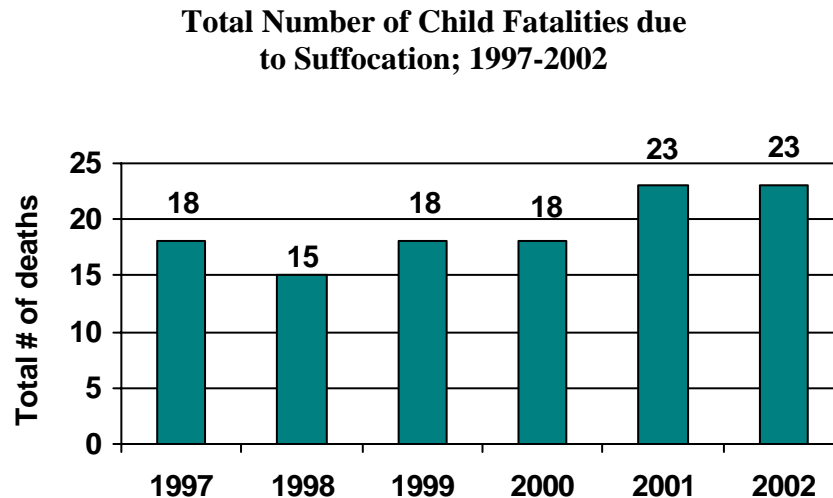


### Suffocation/Strangulation Fatalities

Fatalities involving threats to breathing were the second most common unintentional injury deaths in Kentucky for 2002. Child fatalities due to suffocation increased 28% from a total number of 18 in 1997 to 23 in 2002 (Figure 21.). There are many different hazards that can pose a threat to breathing such as suffocation, choking, aspiration, and strangulation. Infants and children under age three are particularly vulnerable to these hazards.

A specific area of concern for infant suffocation is the sleeping environment. Soft bedding, fluffy pillows and blankets, loose-fitting sheets, improper fitting mattresses, and stuffed toys all pose a suffocation risk and should not be utilized in an infant's sleeping environment. A rising concern in the U.S. is the practice of babies sleeping in an adult bed with a parent or caregiver, commonly referred to as co-sleeping. Although this practice is common in other cultures, it is highly controversial in the U.S. Proponents claim there are benefits to co-sleeping such as longer periods of breastfeeding and more restful sleep for the parents. While this may be true, there are dangers to the infant associated with the practice including suffocation, falls, getting trapped between the bed and a wall, the head board or foot board, and bed sharers rolling over onto the infant. These dangers should be recognized by caregivers and parents and infants should only be placed in appropriate sleep environments.

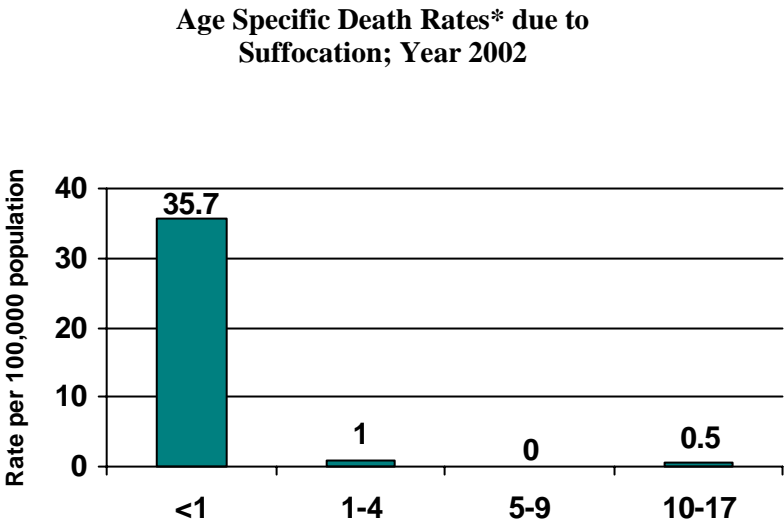
Figure 21.



Suffocation fatalities were highest among those less than one year of age with an age specific rate of 35.7/100,000 population (Figure 22.). Infants are at greater risk of suffocation fatalities due to limited physical coordination and cognitive abilities. Extra care should be taken to ensure the safety of an infant’s sleeping environment to help reduce deaths. For example:

- Do not place infants to sleep on the stomach; place on the back instead
- Do not place infants to sleep on soft bedding surfaces such as fluffy pillows, blankets, stuffed animals, couches, waterbeds, or other foam surfaces
- Do not use improper bedding such as loose fitting sheets or blankets; ensure infants crib has proper fitting mattresses and bed linens
- Do not place infant to sleep in an adult bed
- Remove any extra blankets or toys from infants bed before placing the infant in bed

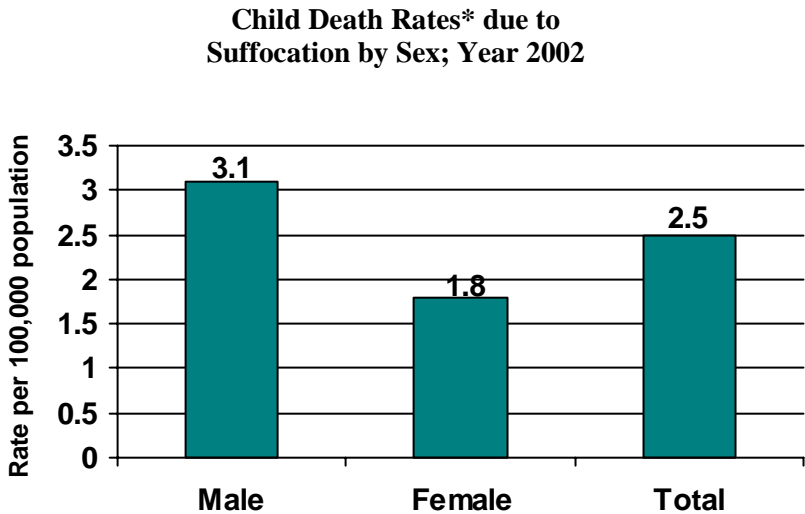
Figure 22.



\*Rates are per 100,000 specified population  
For further explanation of rates, refer to the Technical Notes section in the Appendix

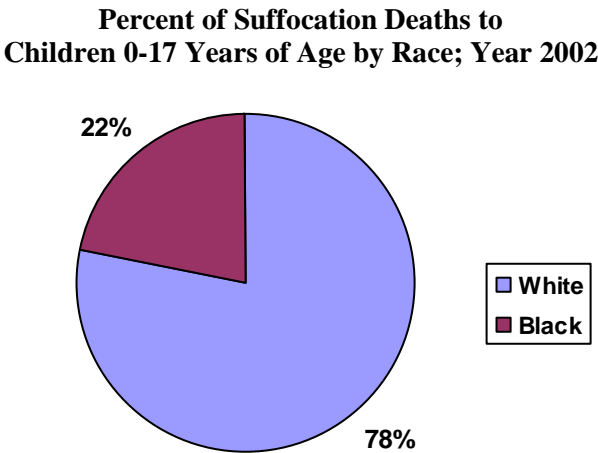
Males had a higher rate of suffocation deaths than females (Figure 23.) and a greater percentage of whites died from suffocation than blacks (Figure 24.).

Figure 23.



\*Rates are per 100,000 specified population  
For further explanation of rates, refer to the  
Technical Notes section of the Appendix

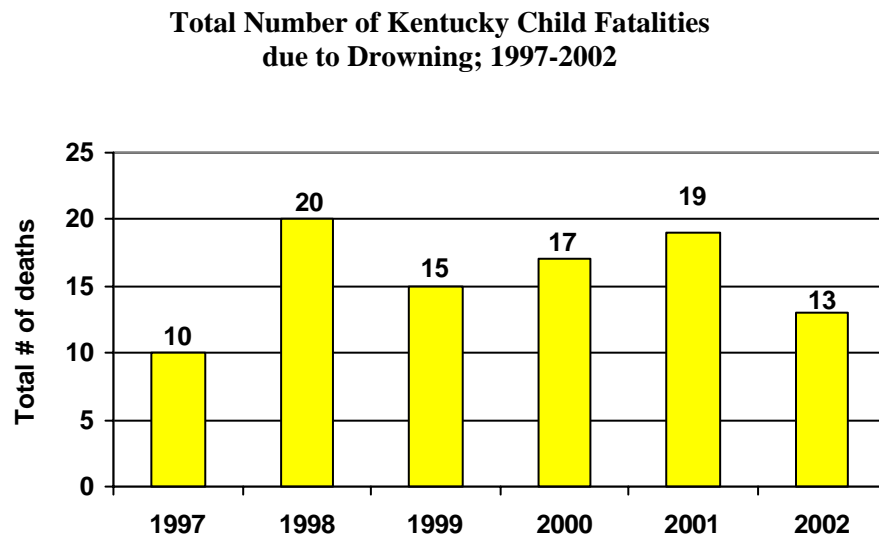
Figure 24.



## Drowning Fatalities

Drowning is the second leading cause of injury-related death for children aged 1-14 in the United States. Nationally, there were a total of 943 deaths due to drowning in children less than 15 in year 2000.<sup>8</sup> Lack of adult supervision, inability to swim, and alcohol intoxication are only a few of the contributing factors leading to this preventable fatality. Deaths due to drowning were the third leading cause of unintentional injury deaths in Kentucky for 2002. Drowning fatalities increased 30% from 1997-2002 (Figure 25.) emphasizing the need for proper public education on water safety.

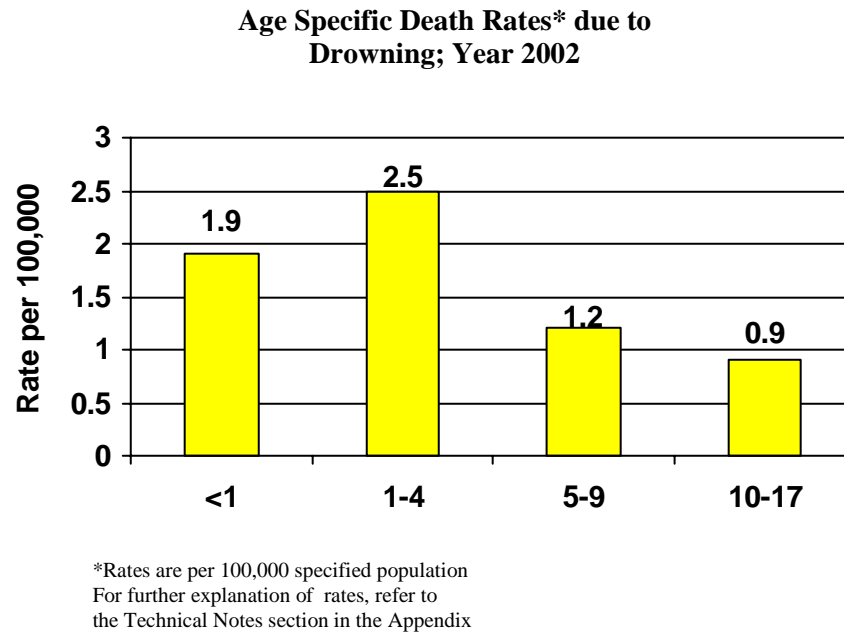
Figure 25.



Age is a major contributing factor related to fatal drowning. Typically, the very young (<5) and the teen-age group have the most occurrences of drowning deaths. In Kentucky, the age group with the highest rate of drowning fatalities were the 1-4 year olds with a rate of 2.5/100,000 population (Figure 26.) indicating the need for proper adult supervision at all times a young child is around a water source. The age group with the second highest death rate due to drowning was the <1 year once again emphasizing the need for proper adult supervision of small children at all times.

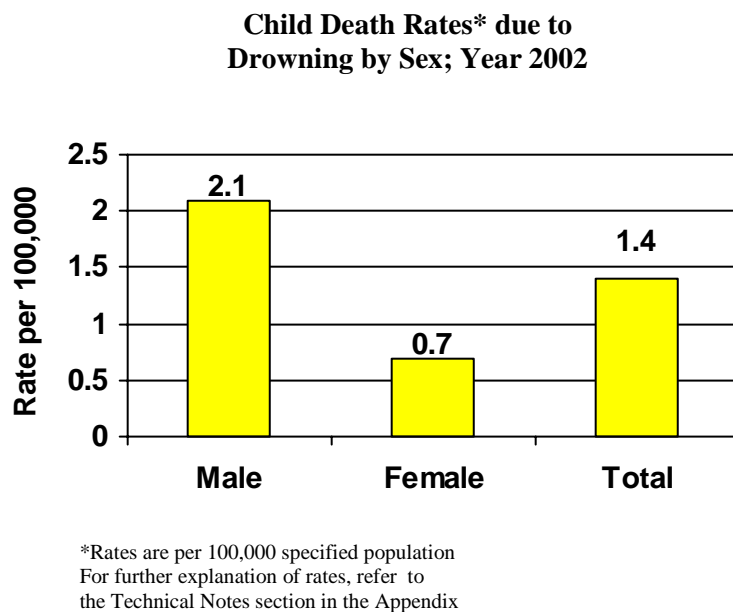


**Figure 26.**



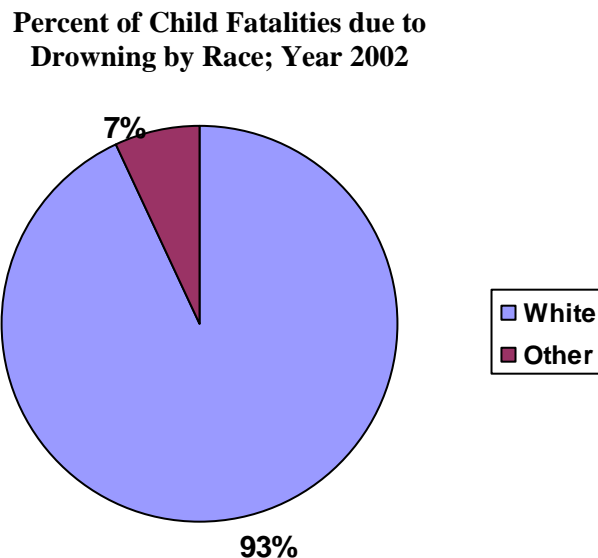
The rate of drowning was higher among males than females with males having a rate of death 3 times that of females (Figure 27.). This may indicate that males tend to be more “risk takers” than females thus placing themselves at risk of death due to injuries.

**Figure 27.**



The majority of drowning fatalities (93%) were to those children of white race with 7% occurring among those of other race (Figure 29.).

**Figure 29.**



The most common source of water for fatal drowning in Kentucky included open sources of water such as rivers, lakes, and in-ground swimming pools and ponds (see Table 2.). The majority of fatal drowning occurred in other sources of open water (i.e. in-ground ponds, decorative/landscape ponds, frozen ponds, and water reservoirs) followed by swimming pools. There were two fatal drownings occurring in the bathtub for year 2002.

**Table 2.**

**Total Number of Kentucky Resident Deaths due to Drowning by Source of Water; 2002**

Source of Water	Total # of Drownings
Other open water source	5
Swimming Pool	5
Bathtub	2
Lake/River	1
<b>State Total</b>	<b>13</b>

The importance of proper adult supervision of children around water sources cannot be stressed enough. Adults must supervise small children at all times in and around water sources to help prevent fatal drowning accidents from occurring. In 2001, 26% of the drowning deaths that occurred in Kentucky were attributed to a lack of adult supervision and or neglect<sup>9</sup>. Proper prevention measures and water safety rules should be followed at all times in order to prevent fatal drowning from occurring among Kentucky's children.

## **Prevention Measures:**

The National Center for Injury Prevention and Control addressed the issue of childhood drowning with the following recommendations:

You can greatly reduce the chances of you or your children becoming drowning or near-drowning victims by following a few simple safety tips:

- Whenever young children are swimming, playing, or bathing in water, make sure an adult is **constantly** watching them. By definition this means that the supervising adult should not read, play cards, talk on the phone, mow the lawn, or do any other distracting activity while watching children.
- Never swim alone or in unsupervised places. Teach children to always swim with a buddy.
- Keep small children away from buckets containing liquid: 5-gallon industrial containers are a particular danger. Be sure to empty buckets when household chores are done.
- Never drink alcohol during or just before swimming, boating, or water skiing. Never drink alcohol while supervising children. Teach teenagers about the danger of drinking alcohol and swimming, boating, or water skiing.
- To prevent choking, never chew gum or eat while swimming, diving, or playing in water.
- Learn to swim. Enroll yourself and/or your children aged 4 and older in swimming classes. Swimming classes are not recommended for children under age 4.
- Learn CPR (cardio-pulmonary resuscitation). This is particularly important for pool owners and individuals who regularly participate in water recreation.
- **Do NOT use** air-filled swimming aids (such as "water wings") in place of life jackets or life preservers with children. These can give parents and children a false sense of security and increase the risk of drowning.
- Check the water depth before entering. The American Red Cross recommends 9 feet as a minimum depth for diving or jumping.

**If you have a swimming pool at your home:**

- Install a four-sided, isolation pool-fence with self-closing and self-latching gates around the pool. The fence should be at least 4 feet tall and completely separate the pool from the house and play area of the yard.
- Prevent children from having direct access to a swimming pool.
- Install a telephone near the pool. Know how to contact local emergency medical services. Post the emergency number, 911, in an easy-to-see place.
- Learn CPR.

**Additional Tips for Open Water**

- Know the local weather conditions and forecast before swimming or boating. Thunderstorms and strong winds can be extremely dangerous to swimmers and boaters.
- Restrict activities to designated swimming areas, which are usually marked by buoys.
- Be cautious, even with lifeguards present.
- Use U.S. Coast Guard-approved personal flotation devices (life jackets) when boating, regardless of distance to be traveled, size of boat, or swimming ability of boaters.
- Remember that open water usually has limited visibility, and conditions can sometimes change from hour to hour. Currents are often unpredictable -- they can move rapidly and quickly change direction. A strong water current can carry even expert swimmers far from shore.
- Watch for dangerous waves and signs of rip currents -- water that is discolored, unusually choppy, foamy, or filled with debris.
- If you are caught in a rip current, swim parallel to the shore. Once you are out of the current, swim toward the shore.

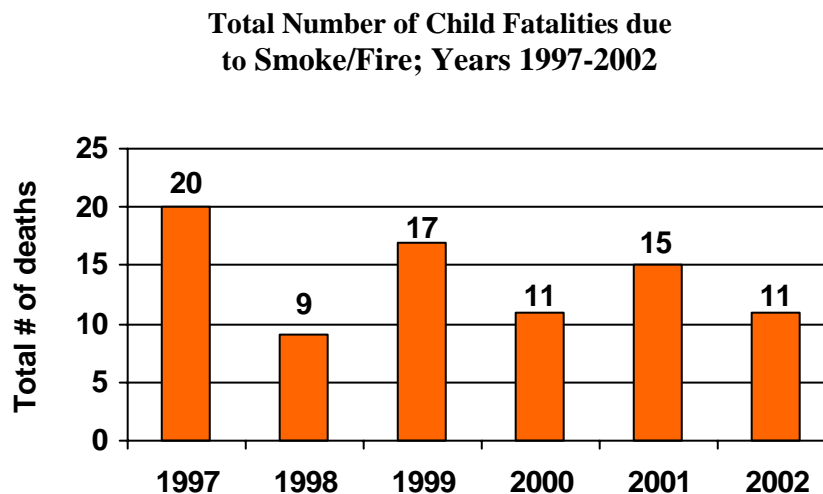
## Smoke/Fire Fatalities

Every year in the U.S., thousands of children are either injured or die in fire related accidents. Nationally, residential fires account for 79% of all fire deaths, and children aged four and under are at greatest risk of fire related deaths<sup>6</sup>. Some children are unaware of the dangers of playing with matches, candles, lighters, or other devices that lead to fire until it is too late. All children should be properly educated in fire safety issues and should never be left unsupervised.

An area of great concern related to fire deaths is either not having a smoke alarm or having a non-working smoke alarm in the home. A survey of Kentucky residents conducted in 1999 revealed that of those surveyed, 32% reported testing their home smoke alarm within the past six months, and 9% reported testing them within the past year<sup>10</sup>. Smoke alarms have been proven to be beneficial as well as cost effective. In fact, for every \$1.00 spent on smoke alarms, \$69.00 is saved in fire related costs<sup>6</sup>. All residential homes should contain smoke alarms and routine testing of the alarms should be conducted at least once a year including replacing old batteries with new ones.

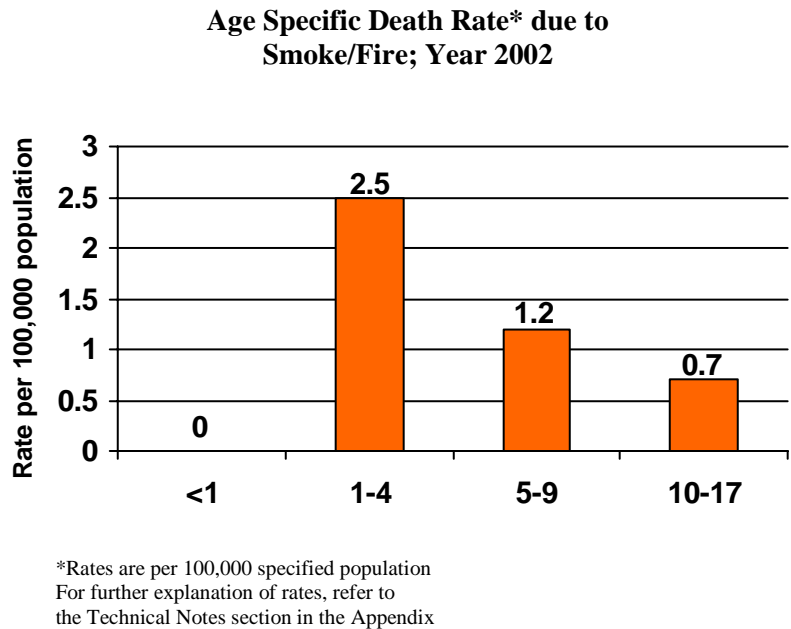
Fire related deaths to children have changed little in the Commonwealth over the past five years. In 2002, there were 11 deaths to children due to smoke and or fire (Figure 30.) representing a 45% decrease since 1997.

Figure 30.



In Kentucky, the age group with the highest death rate due to smoke/fire were those aged 1-4 with a rate of 2.5/100,000 population. The 5-9 age group had the second highest death rate due to smoke/fire (1.2/100,000 population) illustrating the need for proper fire safety education and adult supervision (Figure 31.).

**Figure 31.**



The smoke/fire death rate was higher among males than females (Figure 32.) demonstrating the fact that boys are more likely than girls to be involved with fires large enough to warrant calling the fire department<sup>11</sup>. The majority of the fire related deaths were to children of white race (92%) compared to 8% for children of black race (Figure 33.).

Figure 32.

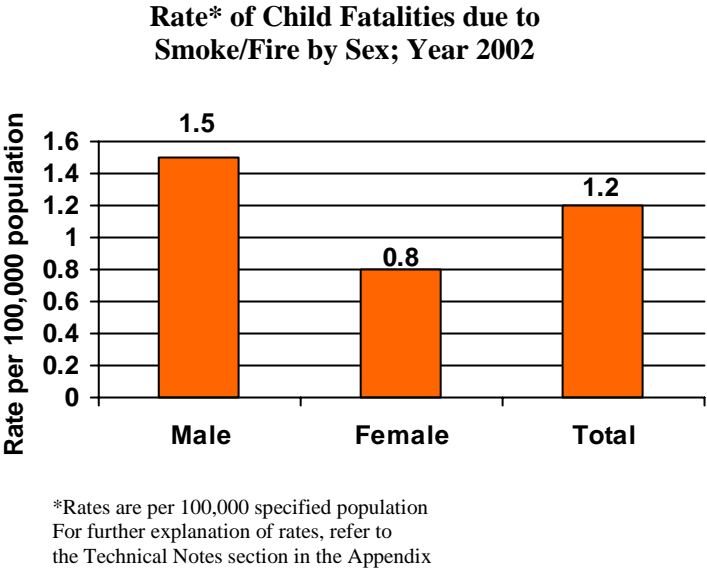
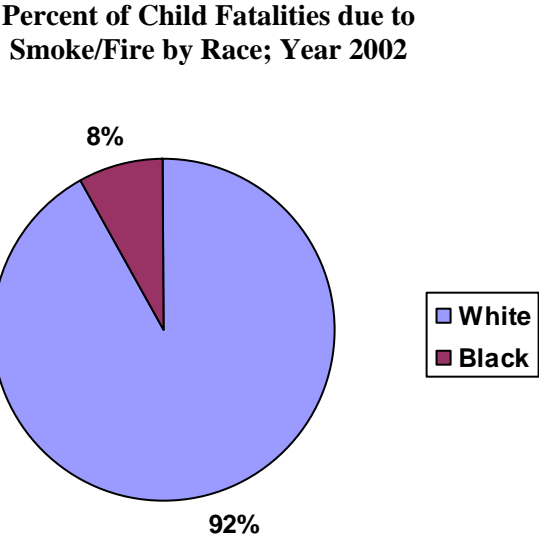


Figure 33.



## **Intentional Injuries**

Intentional injuries are executed with the intent to either inflict forceful injury or death upon another person or to oneself. If the event is inflicted upon another person, and results in death, it is termed homicide, if it is inflicted upon oneself, it is termed suicide. Of the total injury related child fatalities in Kentucky, 13% were intentional in nature. There were a total of 18 homicide deaths and 10 suicide deaths in the Commonwealth during 2002.

## **Homicide Fatalities**

For approximately 30 years, Kentucky has had laws governing the monitoring, reporting and prosecution of homicide deaths related to child abuse or neglect. The process evolved to a multidisciplinary team approach in reviewing information from death scene investigations for use in determining the manner in which abuse or neglect was inflicted and affected a child death. The Kentucky Cabinet for Families and Children, Department for Community Based Services is responsible for implementation of these investigations by a multidisciplinary review system.

The Department for Community Based Services works in conjunction with the Department for Public Health in reporting child abuse or neglect cases and fatalities. The following section, Child Abuse and/or Neglect Fatalities reflects data from the Department for Community Based Services.<sup>12</sup>



## **CHILD ABUSE AND NEGLECT FATALITIES**

There are many forms of physical abuse and neglect that can lead to the death of a child. Physical abuse is the infliction of injury by punching, beating, kicking, biting, burning, shaking, or otherwise physically harming a child. A major cause of death is inflicted head trauma, including shaking, for children under the age of four. Most children die from abuse when a caregiver loses patience with the child. The most common precipitating “triggers” are inconsolable crying, bedwetting, eating or toilet training difficulty and disobedient behavior. Neglect can include a caregiver who fails to provide a child food, a clean living environment, safe shelter, medical and mental health care, appropriate supervision and reasonable protection from harm. Most children die from neglect when the caregiver for the child fails to provide appropriate supervision for the child considering the age of the child and the type of activity involved. Children ages three and under are more at risk for a child fatality and the biological parent is more often responsible for the abuse and/or neglect related to the death of the child. Substance abuse, domestic violence, and/or mental health issues are also common risk factors present in the families who experience a child fatality due to abuse and/or neglect.

The Cabinet for Health and Family Services, Division of Protection and Permanency (DPP) is the agency in Kentucky with the statutory responsibility for receiving and investigating reports of alleged child abuse and neglect. KRS 600.020(1) defines an abused or neglected child as “a child whose health or welfare is harmed or threatened with harm when his parent, guardian, or other person exercising custodial control or supervision of the child: (a) inflicts or allows to be inflicted upon the child physical injury, by other than accidental means, and (b) does not provide the child with adequate care, supervision, food, clothing, shelter, and education or medical care necessary for the child’s well-being.” When an allegation is made that a child’s death may be due to abuse or neglect caused by a caregiver, an investigation is conducted by a Social Service Worker from the DPP, usually in conjunction with law enforcement. A finding of substantiated or unsubstantiated is made in relation to the allegation of abuse or neglect. This is a social work finding, not a legal determination.

Law enforcement and prosecutors decide if any criminal charges will be brought against the perpetrators. The Division of Protection and Permanency’s primary emphasis in the social service investigation is the safety and well being of other children currently living in the household. The DPP provides ongoing child protective services to families where there has been a child fatality and there are surviving children in the home who would be at risk of harm without protective services.

The Cabinet maintains child fatality statistical data and reviews all child abuse and/or neglect fatalities to identify statewide trends associated with families who experience a child fatality, and social work practice, policy and training.

The following statistical information relates to incidents where there has been a “substantiated” finding of abuse and/or neglect by the DPP regarding the death of a child during the 2002 Calendar Year. These numbers may differ from other statistical information

in this report because this information is taken from DPP records and the statistics in the rest of this report are taken from death certificates and coroner's reports. For example, the coroner's report might note that the cause of death was drowning, and the death certificate would categorize it as an accidental death. However, DPP may substantiate neglect in the death because a 9-month-old child was left unsupervised in a tub of water leading to the drowning.

**During the 2002 Calendar Year:**

- There were **29** total child deaths in which there was a “substantiated” finding of abuse and/or neglect made by DPP.
- 62% (18) were male
- 38% (11) were female
- 86% (25) were Caucasian
- 7% (2) were African American/Caucasian
- 3% (1) was African American
- 3% (1) was marked unknown race
- 7% (2) were of Hispanic Ethnicity
- 45% (13) were under one year of age
- 52% (15) were ages 1-3
- 3% (1) child was 14 years old
- 97% (28) were 3 and under
- 69% (20) P&P had previous involvement with family
- 45% (13) P&P had previous involvement with family within last year
- 24% (7) P&P had previous involvement with family over one year prior to death
- 79% (23) with documented Substance Abuse (SA) in the family
- 48% (14) with documented Domestic Violence (DV) in the family
- 31% (9) with documented Mental Health Issues (MHI) in the family
- 93% (27) with one or more of the above three factors documented in the family
- 55% (16) P&P substantiated Neglect related to the fatality incident
- 45% (13) P&P substantiated Physical Abuse related to the fatality incident

### Neglect Deaths

Age	Cause	Perpetrator	Risk Factors
11 mo	Drown in bath tub	Mother & father	SA, DV, MHI
2 yo	Poisoning-unsupervised	Aunt & uncle	SA, DV, MHI
1 yo	Drown in bath tub	Mother & father	SA, MHI
3 yo	House fire- locked in room	Mother & father	SA, MHI
3 mo	Left in car all day	Mother	
1 yo	Crushed by a dresser-locked in bedroom	Mother & father	MHI
2 yo	Drown in river- unsupervised	Mother & father	SA, MHI
3 yo	Drown in bath tub	Mother & maternal grandparents	SA, DV
3 yo	Overdose on parent medication	Mother	SA
14 yo	Injuries from car accident-DUI	Father	SA, DV, MHI
2 yo	Overdose on cough medication	Mother & father	SA
3 mo	Asphyxia/unsafe sleeping arrangement- substance abuse	Mother & father	SA, DV
1 yo	Injuries from car accident-DUI	Mother	SA
1 yo	Drown in bath tub	Father	SA, DV
4 do	Asphyxia/unsafe sleeping arrangement- substance abuse	Father	SA, DV
11 mo	Overdose on parent medication	Mother & father	SA

SA=Substance Abuse, DV=Domestic Violence, MHI=Mental Health Issues

### **Facts for Neglect Deaths**

- 94% (15 of 16) of child neglect deaths occurred with children who were 3 years old or less.
- 63% (10 of 16) of child neglect deaths occurred and a parent (mother, father or both) were responsible for the death of the child.
- 69% (9 of 16) of child neglect deaths had documented Substance Abuse as a risk factor in the family.
- 54% (7 of 16) of child neglect deaths had documented Domestic Violence as a risk factor in the family.
- 15% (2 of 16) of child neglect deaths had documented Mental Health Issues as a risk factor in the family.
- 92% (12 of 16) of child neglect deaths had one or more of the above risk factors documented in the family.

### **Physical Abuse Deaths**

<b>Age</b>	<b>Cause</b>	<b>Perpetrator</b>	<b>Risk Factors</b>
1 yo	Intentional smothering	Mother	SA
4 mo	Head injury	Mother & Father	SA
3 mo	Head injury	Mother	DV
18 do	Head injury	Father	SA, DV
2 yo	Head injury	Father	SA
1 yo	Intentional overdose	Mother	SA
1 yo	Internal injuries	Mother	SA, DV, MHI
11mo	Head injury	Mother's paramour	SA, DV
2 mo	Intentional smothering	Mother & father	DV
2 mo	Head injury	Mother	SA, MHI
2 mo	Head injury	Mother	
2 yo	Head injury	Unknown	SA, DV
3 mo	Head injury	Mother's paramour	DV

SA=Substance Abuse, DV=Domestic Violence, MHI=Mental Health Issues

### **Facts for Physical Abuse Deaths**

- 100% (13) physical abuse deaths occurred with children who were 2 years of age or less.
- 77% (10 of 13) physical abuse deaths occurred and the parents (mother, father, or both) were responsible for the death of the child.
- 69% (9 of 13) of child physical abuse deaths had documented Substance Abuse as a risk factor in the family.
- 54% (7 of 13) of child physical abuse deaths had documented Domestic Violence as a risk factor in the family.
- 15% (2 of 13) of child physical abuse deaths had documented Mental Health Issues as a risk factor in the family.
- 92% (12 of 13) of child physical abuse deaths had one or more of the above risk factors documented in the family.

## **PREVENTION**

In efforts to prevent or reduce the number of child abuse and neglect fatalities and other serious injuries due to abuse and neglect, the Cabinet examines every child abuse and neglect fatality through a comprehensive review process. Societal trends and common family risk factors such as age of child, history of involvement with DPP, substance abuse, domestic violence, and mental health issues are studied to learn more about families who experience a child abuse/neglect death. During this review, current DPP social work practice and procedure, staff training, and community resources are evaluated and modified to assist DPP workers and community partners in meeting the complex needs of today's families and reduce risk to families and children.

Current statistical data supports that children ages 3 and under who reside in a home where one or more adult family member is struggling with substance abuse, domestic violence, or mental health issues are at an increased risk for serious physical injury or death due to physical abuse or neglect. Families and DPP workers are struggling with the increasingly limited community resources available to assist families in dealing with the issues that are creating risk to the children within their home. It is clear that the prevention of child abuse and neglect fatalities lies in the family's ability to receive treatment for substance abuse, domestic violence, and mental health issues. Many of these families also struggle with finances and transportation so the ability of families to access affordable and geographically close services is critical.

### **General Caregiver Risk Factors**

- Depression, other mental illness or bizarre/dangerous behavior;
- A problem with drugs or alcohol- especially driving under the influence and being in a caretaker role for children;
- Being a victim or perpetrator of domestic violence;
- Poverty or severe financial hardship;
- Having unrealistic expectations for the child's development and behavior or seeing child in a very negative light;
- Having children age 3 and under;
- Having children with special behavioral or medical needs;
- Having several young children in the home;
- Leaving children with male caregivers who have no emotional attachment to the child; or
- Being very young at the birth of their first child.

**Prevention Measures**

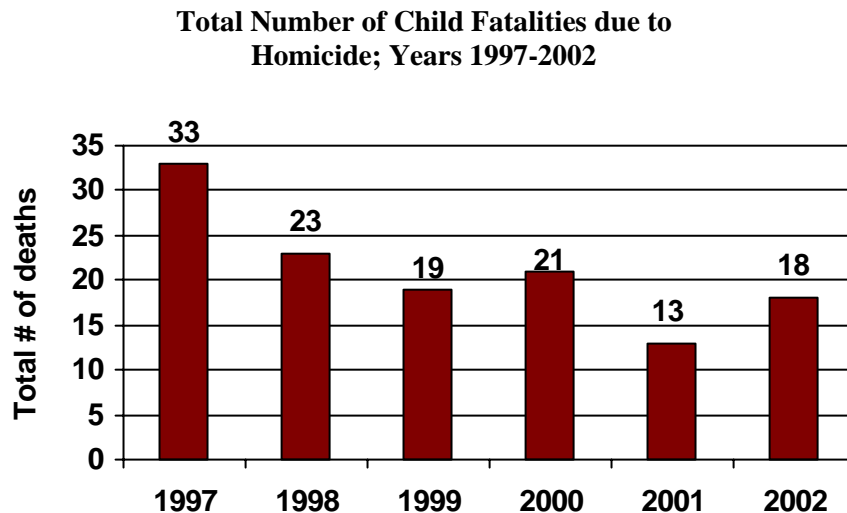
- Supporting the development and operation of multidisciplinary child fatality review teams to study abuse related deaths and develop local prevention strategies.
- Educating and supporting the medical community in identifying child abuse and neglect.
- Encouraging collaboration among human service agencies and other community resources that can provide support to families and children at risk for abuse and neglect.
- Developing affordable community resources to assist families with substance abuse, domestic violence, and mental health issues.
- Providing opportunities for parent education programs that model appropriate parenting behavior, especially for at risk parents of infants and young children.
- Encouraging public education and awareness programs regarding the signs and risks of abuse and neglect.

Kentucky statutes require that anyone who “has reasonable cause to believe” that a child is abused or neglected shall make a report to proper authorities which are DPP, County and Commonwealth Attorneys, or law enforcement. The number to call to make a report of abuse or neglect is 1-800-752-6200. All information and data in this section of the Child Abuse and/or Neglect Fatalities section of this report was compiled and provided by the Division of Protection and Permanency, Child Safety Branch at 502-564-2136.

### Homicide Fatalities

Deaths due to homicide have declined in Kentucky from 1997-2002. There were a total of 18 homicide related deaths to children in 2002 compared to 33 deaths in 1997 (Figure 34.). This represents a 45% decline in the total number of homicide deaths to children over the five year period.

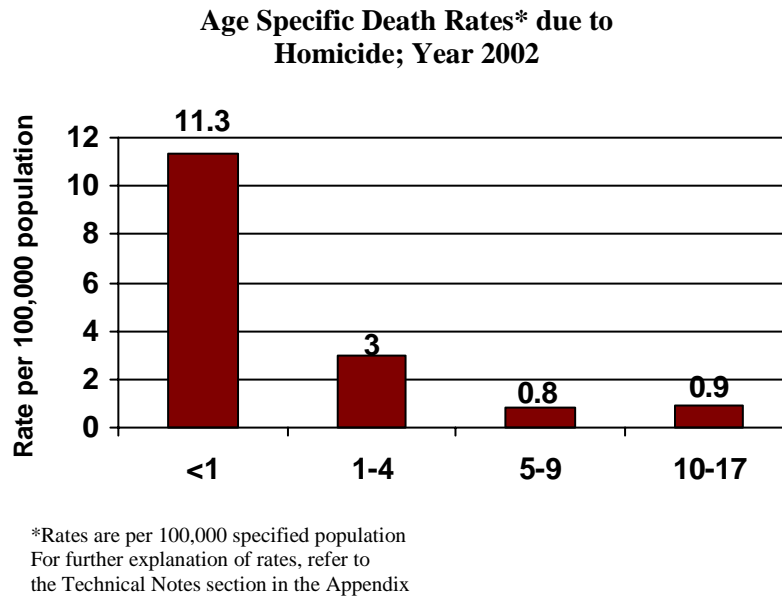
**Figure 34.**



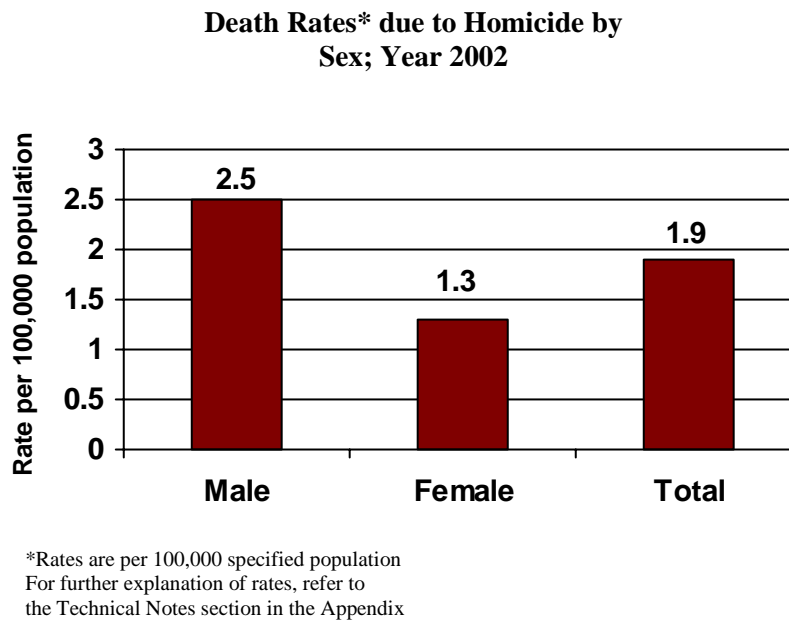
Infants and toddlers are the most vulnerable age group for homicide. For Kentucky, infants had the highest age specific death rate due to homicide (11.3/100,000) with those children aged 1-4 having the second highest (Figure 35.).

Males had a slightly higher rate of homicide deaths than females (Figure 36.) and deaths were more prevalent among those of white race compared to those of black or other races (Figure 37.).

**Figure 35.**

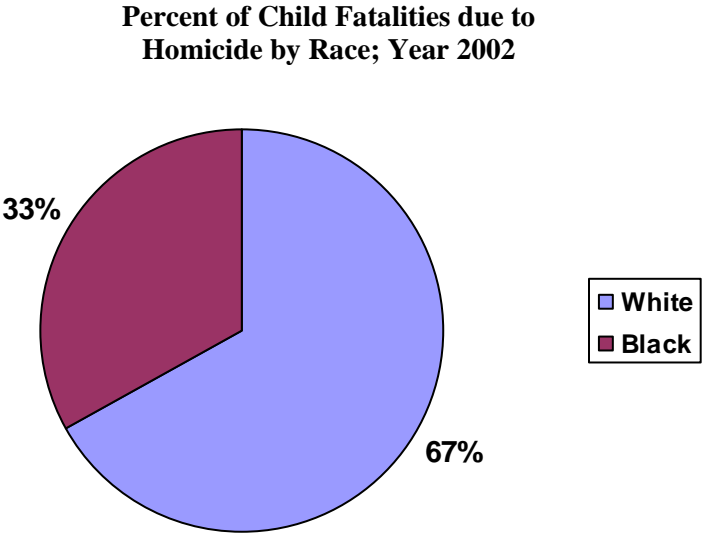


**Figure 36.**





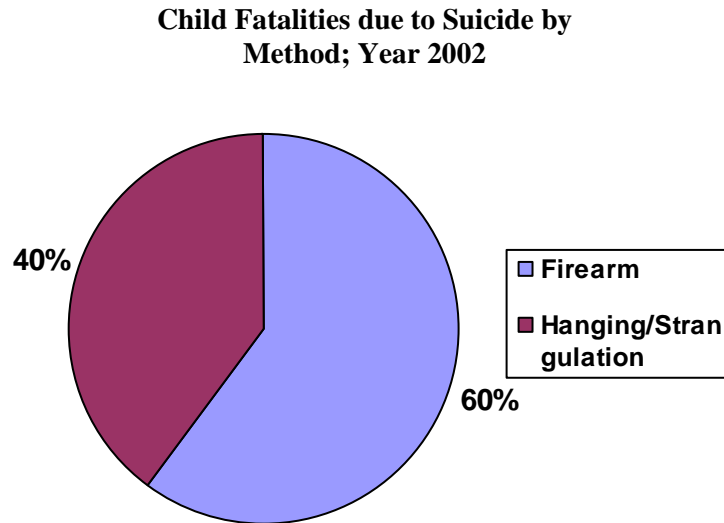
**Figure 37.**



## Suicide Fatalities

Suicide claims the lives of thousands of Americans every year. Nationally, suicide ranked as the 11th leading cause of death in 2001.<sup>8</sup> In Kentucky, there were a total of 10 child suicide deaths in 2002 with the majority (60%) utilizing a firearm to carry out the action (Figure 38.).

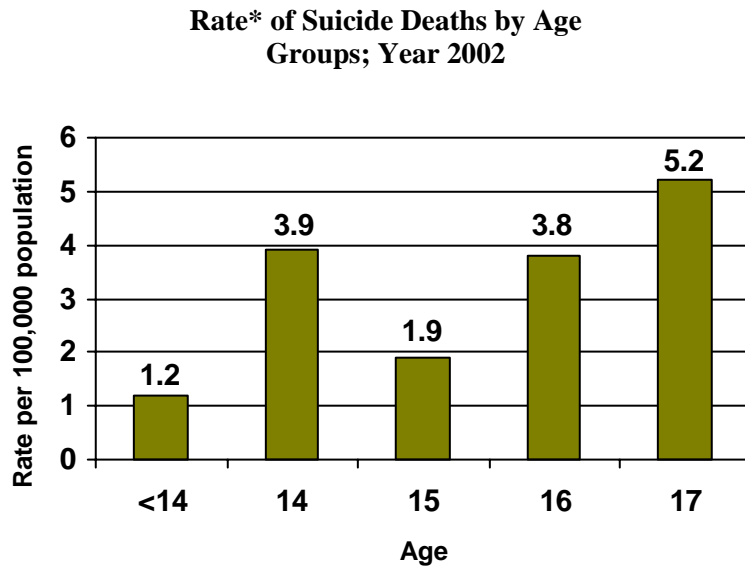
**Figure 38.**



Suicide and attempted suicide among youth is a very complex issue that deals with an individual's thoughts, feelings, attitudes, and behavior. Data from the 2003 National Youth Risk Behavior Survey indicated that of those youth surveyed in grades 9-12, 28.6% reported feeling sad or hopeless during the 12 months preceding the survey, and 8.5% reported they had attempted suicide in the 12 months prior to the survey. Data specific for Kentucky showed that of those surveyed in grades 9-12, 30.1% reported feeling sad or hopeless during the 12 months preceding the survey, and 10.3% reported attempting suicide in the 12 months prior to the survey.<sup>13</sup>

All Kentucky child suicide deaths in 2002 occurred in the pre-teen and teen population ranging from 11-17 years old. The age group with the highest age specific death rate for suicide was the 17 year olds with a rate of 5.2/100,000 population (Figure 39.). This age group had a rate nearly 1.5 times that of the 14 year olds indicating that older teens are more likely to successfully complete suicide than younger teens. A concerning fact however, is that three suicides occurred to younger aged children (one 11 and two 12 year olds) than what is typically observed.

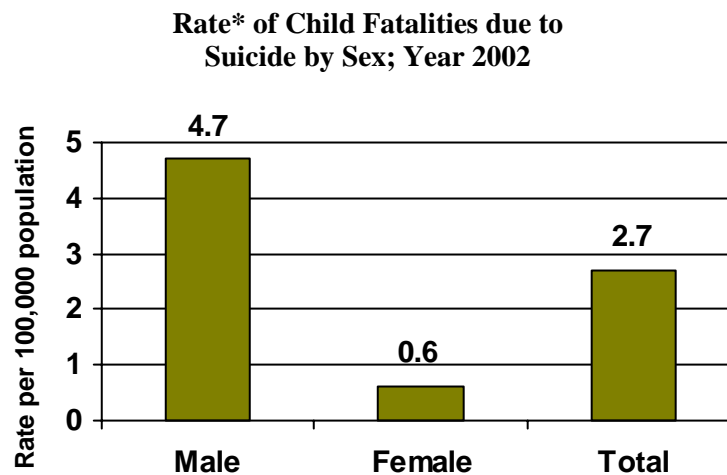
**Figure 39.**



\*Rates are per 100,000 specified population  
For further explanation of rates, refer to  
the Technical Notes section in the Appendix

Research previously conducted by the National Strategy for Suicide Prevention indicated that the male teen population was at a higher risk for suicide than female teens. In Kentucky, males had a rate of suicide deaths eight times that of females (Figure 40.). Clearly, prevention efforts should be targeted to all teens but with special attention to the male teen population.

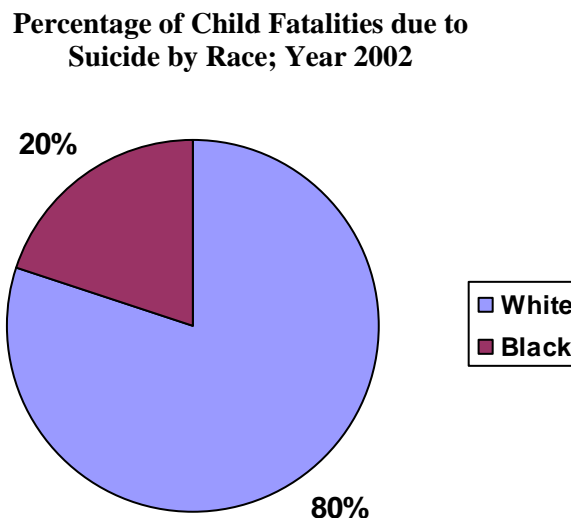
**Figure 40.**



\*Rates are per 100,000 specified population  
For further explanation of rates, refer to  
the Technical Notes section in the Appendix

Of the total child suicide deaths in 2002, 80% were of white race compared to 20% of black race (Figure 41.). Special attention should be given to the ethnic differences that may exist regarding suicide risks and behaviors when implementing prevention efforts.

**Figure 41.**



It is important to be aware of the warning signs of suicide and where to seek help when a crisis arises. The following is not an all-inclusive list but represents the more “common” behaviors exhibited by individuals contemplating suicide.

**Warning Signs:**

Parents and adults who work with teens need to be able to recognize the danger signals associated with severe depression and ideation of suicide:

- Noticeable change in eating and sleeping habits
- Decline in school performance
- Violent or rebellious behavior
- Drug and/or alcohol abuse
- Unusual neglect of personal appearance
- Difficulty in concentration
- Radical personality changes
- Withdrawal from friends, family and regular activities
- Sudden, forced cheerfulness after a period of depression
- Verbal comments such as “I won’t be a problem much longer...”

**Prevention Measures:**

Currently there is no definitive measure to predict suicide or suicidal behavior. Researchers have identified factors that place individuals at higher risk for suicide, but very few persons with these risk factors will actually commit suicide. Risk factors may or may not include mental illness, substance abuse, previous attempts at suicide, family history of suicide, history of sexual abuse, and impulsive or aggressive tendencies. Suicide is a relatively rare event and it is therefore difficult to predict which persons with these risk factors will ultimately commit suicide.<sup>14</sup> The following prevention measures should be considered when dealing with an individual contemplating suicide.

- Never agree to keep the discussion of suicide with a teen a secret. Agree to provide help and support in obtaining professional help.
- Talk about suicide in an open manner. Teens need to be given a chance to discuss suicide by voicing their thoughts and opinions. Candid discussion is important particularly when a teen suicide has occurred in a community.
- Let young people know about hotline telephone numbers and crisis intervention services that are accessible locally.
- Risk getting involved. If you suspect suicidal thoughts or behavior, ask the teen directly if he or she is considering suicide. Don't avoid the subject or wait for the teen to come to you.
- Be alert to the teen's feelings. The severity of the problem should be judged from the teen's perception, not by adult standards. If a teen perceives something as a problem, it is a problem for him or her.
- Model healthy behavior and positive problem-solving approaches. Adults can be models for young people by dealing with their own stress in a constructive manner.
- Use television shows, films, newspaper articles and other media as a trigger for a discussion of effective ways to deal with stress and depression.

## **Appendix**

Information contained within the Appendix include technical information on rate calculation as well as specific information on how data are collected. References are also included in this section.

## Technical Notes & Data Sources

Data contained within this report are from the Vital Statistics Death Certificate files for Kentucky residents for calendar year 2002 and the 2002 Child Fatality Coroner Report Form database. The data reflects only those deaths occurring to children ages 0-17. Data from the 2002 Vital Statistics Live Birth Certificate files were utilized for denominator data in calculating infant mortality rates. Causes of death are classified based on the International Classification of Diseases 10th revision (ICD-10). Whenever available, rates for the Nation were compared to rates for Kentucky. National rates were obtained from the National Vital Statistics Reports as published by the National Center for Health Statistics and the Centers for Disease Control and Prevention.

Certain limitations exist with death certificate data and should be acknowledged when interpreting results. First, problems exist in the completion of death certificates as well as the accuracy of completed information on the certificate. Physician interpretation of mortality causal events may differ which could lead to variation in coding the primary cause of death. Also, determining one specific underlying cause of death among decedents with multiple chronic diseases can become problematic since the etiologic sequence of diseases may be unclear, and one single disease may not adequately describe the cause of death. Second, data reported in this publication are from the primary cause of death field only and do not include supplemental causes of death. This could lead to under-reporting of certain causes of death. For example, an infant with a congenital heart defect that is born pre-term may have listed prematurity as the primary cause of death on the certificate with congenital anomalies listed as a contributing cause of death; since this report is based only on the primary cause of death, this infant would be counted in the prematurity deaths but not in the congenital anomalies deaths. Therefore, reporting based solely on the primary cause of death can lead to under-reporting of certain causes.

### Calculation of Rates:

Often times rates are used to relate the number of cases of a disease or outcome to the size of the source population in which they occurred. A rate is defined as a ratio in which there is a distinct relationship between the numerator and denominator, and some measure of time is included as part of the denominator. One example of a rate would be the number of newly diagnosed cases of breast cancer per 100,000 women during a given year.

Infant mortality rates are commonly used to measure the risk of dying during the first year of life. These rates are calculated by dividing the number of infant deaths in a calendar year for a given area by the number of live births registered for the same period and area and are presented as rates per 1,000 live births. In contrast to infant mortality rates based on live births, infant death rates are based on the estimated population under one year of age. Infant death rates presented in this report as age specific death rates are calculated by dividing the number of infant deaths by the 2002 Population Estimates of persons under one year of age residing in Kentucky. These rates are presented as rates per either 10,000 or 100,000 population in this age group. Due to differences in the denominators, infant death rates may differ from infant mortality rates.

With the exception of infant mortality rates, rates presented within this report are on an annual basis per either 10,000 or 100,000 estimated population residing in Kentucky. The 2002 Population Estimates for Kentucky as compiled by the Kentucky State Data Center Urban Studies Institute was utilized for denominator data in calculating death rates. Age specific death rates are calculated by dividing the total number of deaths for a specified age group for a given area and time frame by the total estimated persons within that same age group for the same area and time frame and expressed as a rate per either 10,000 or 100,000 specified population.

Rates were not calculated by race for this publication due to a lack of sufficient denominator data for specified race categories. Causes of death for race categories are presented as a percentage of the total number of deaths per specified cause.



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